FIG. 1

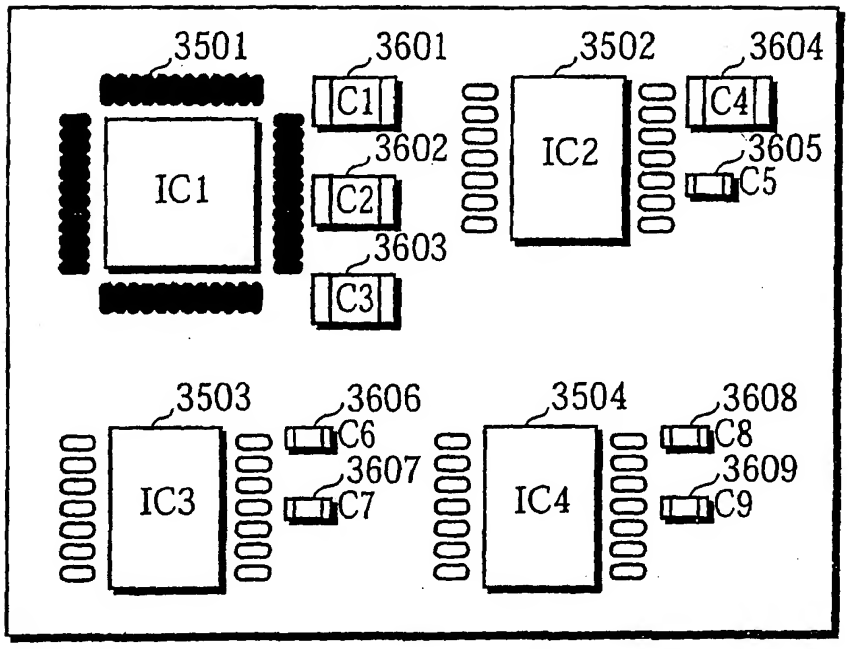
3501
3601
3502
3604
C1
C4
IC1
3602
IC2
3605
C2
C5
3603
C3
3503
3606
3504
3608
C6
C8
IC3
3607
IC4
3609
C7
C9

FIG. 2

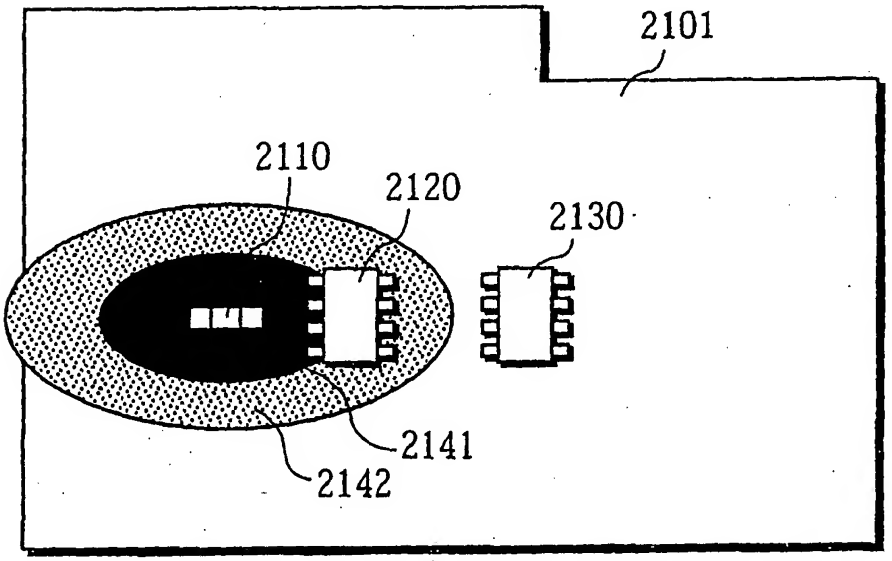
2101
2110
2120
2130
2141
2142

FIG. 3

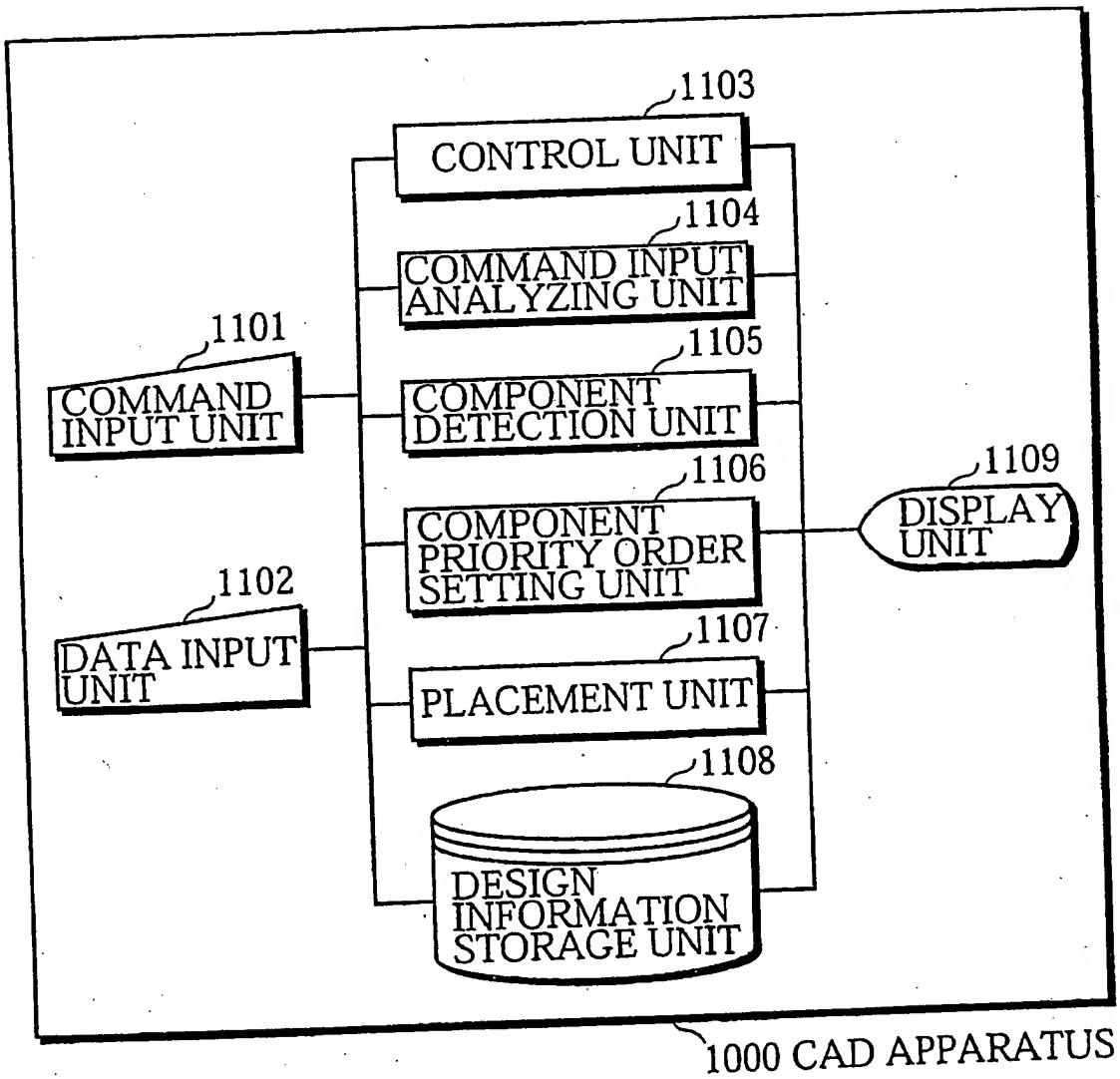
1103
CONTROL UNIT
1104
COMMAND INPUT ANALYZING UNIT
1101
COMMAND INPUT UNIT
1105
COMPONENT DETECTION UNIT
1106
COMPONENT PRIORITY ORDER SETTING UNIT
1109
DISPLAY UNIT
1102
DATA INPUT UNIT
1107
PLACEMENT UNIT
1108
DESIGN INFORMATION STORAGE UNIT
1000 CAD APPARATUS

FIG. 4

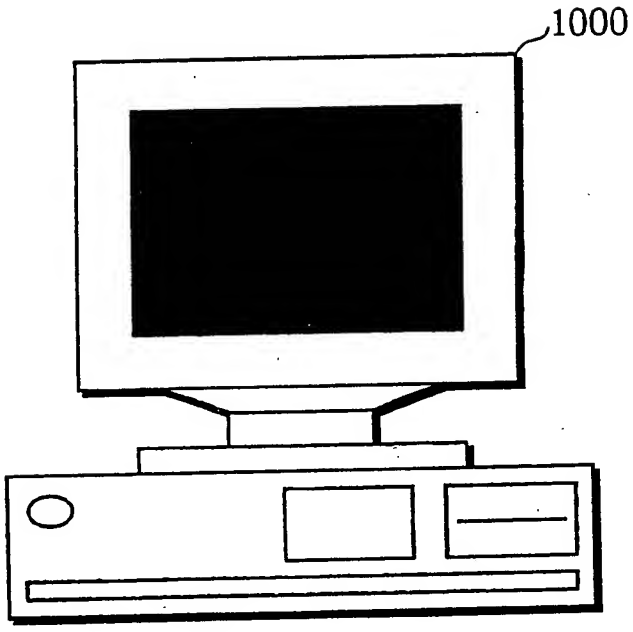

FIG. 5

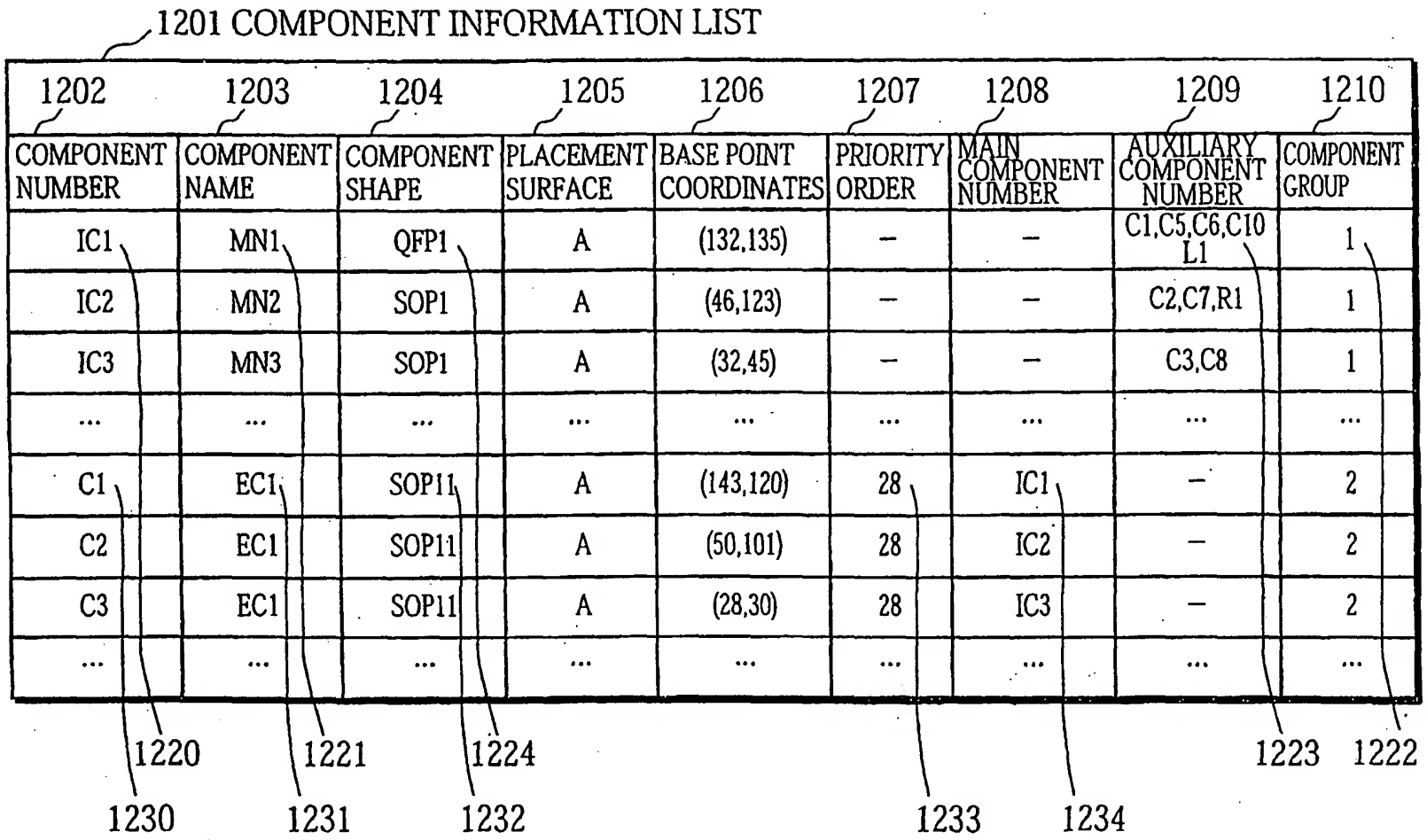
1201 COMPONENT INFORMATION LIST
1202
1203
1204
1205
1206
1207
1208
1209
1210
COMPONENT NUMBER
COMPONENT NAME
COMPONENT SHAPE
PLACEMENT SURFACE
BASE POINT COORDINATES
PRIORITY ORDER
MAIN COMPONENT NUMBER
AUXILIARY COMPONENT NUMBER
COMPONENT GROUP
IC1 MN1 QFP1 A (132,135) – – C1,C5,C6,C10 L1 1
IC2 MN2 SOP1 A (46,123) – – C2,C7,R1 1
IC3 MN3 SOP1 A (32,45) – – C3,C8 1
... ...
C1 EC1 SOP11 A (143,120) 28 IC1 – 2
C2 EC1 SOP11 A (50,101) 28 IC2 – 2
C3 EC1 SOP11 A (28,30) 28 IC3 – 2
... ...
1220
1221
1224
1223
1222
1230
1231
1232
1233
1234

FIG. 6

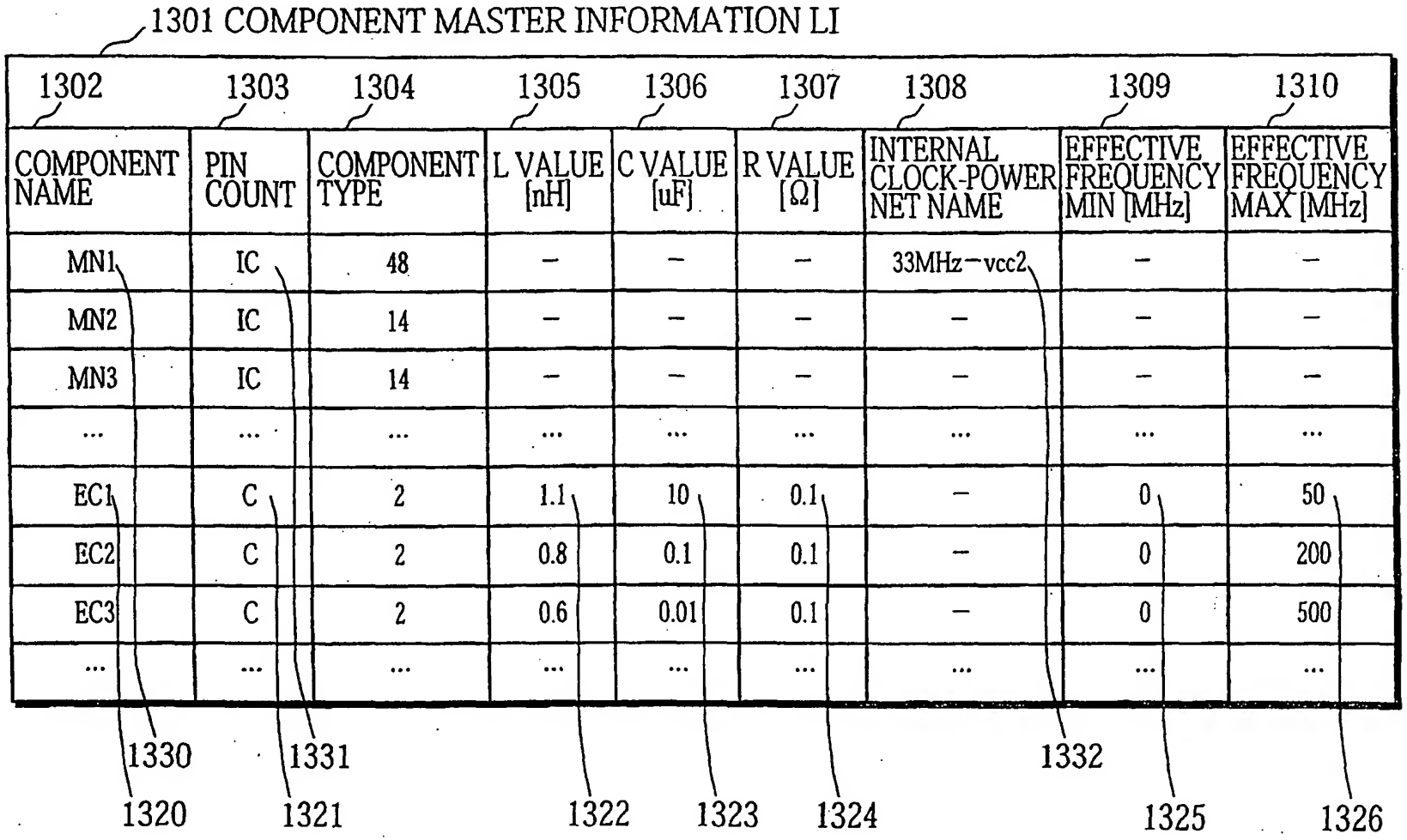
1301 COMPONENT MASTER INFORMATION LI
1302
1303
1304
1305
1306
1307
1308
1309
1310
COMPONENT NAME
PIN COUNT
COMPONENT TYPE
L VALUE [nH]
C VALUE [uF]
R VALUE [Ω]
INTERNAL CLOCK-POWER NET NAME
EFFECTIVE FREQUENCY MIN [MHz]
EFFECTIVE FREQUENCY MAX [MHz]
MN1 IC 48 – – – 33MHz–vcc2 – –
MN2 IC 14 – – – – – –
MN3 IC 14 – – – – – –
... ...
EC1 C 2 1.1 10 0.1 – 0 50
EC2 C 2 0.8 0.1 0.1 – 0 200
EC3 C 2 0.6 0.01 0.1 – 0 500
... ...
1330
1331
1332
1320
1321
1322
1323
1324
1325
1326

FIG. 7

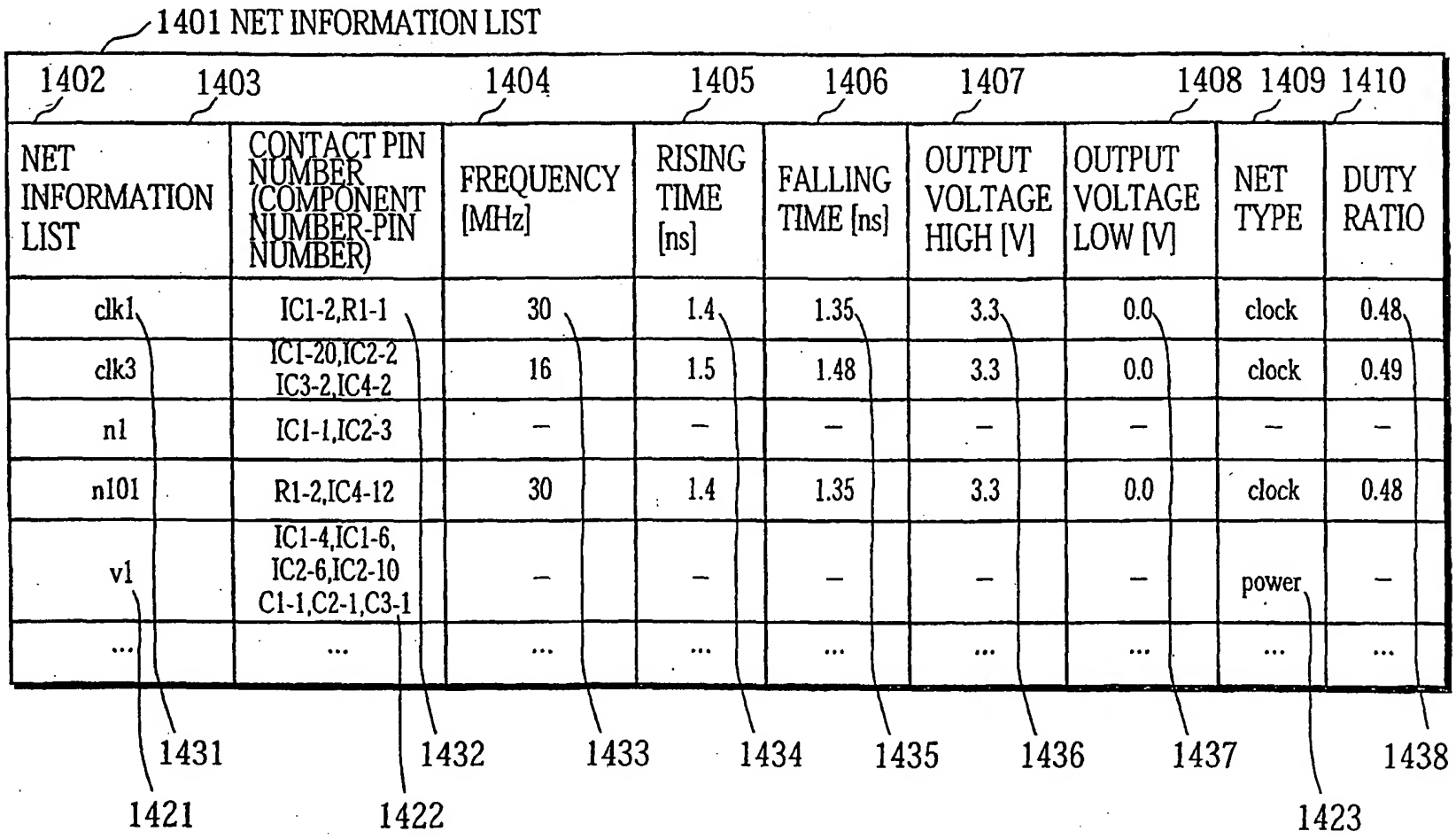
1401 NET INFORMATION LIST
1402
1403
1404
1405
1406
1407
1408
1409
1410
NET INFORMATION LIST
CONTACT PIN NUMBER (COMPONENT NUMBER-PIN NUMBER)
FREQUENCY [MHz]
RISING TIME [ns]
FALLING TIME [ns]
OUTPUT VOLTAGE HIGH [V]
OUTPUT VOLTAGE LOW [V]
NET TYPE
DUTY RATIO
clk1
IC1-2,R1-1
30
1.4
1.35
3.3
0.0
clock
0.48
clk3
IC1-20,IC2-2 IC3-2,IC4-2
16
1.5
1.48
3.3
0.0
clock
0.49
n1
IC1-1,IC2-3
–
–
–
–
–
–
–
n101
R1-2,IC4-12
30
1.4
1.35
3.3
0.0
clock
0.48
v1
IC1-4,IC1-6, IC2-6,IC2-10 C1-1,C2-1,C3-1
–
–
–
–
–
power
–
...
...
...
...
...
...
...
...
...
1421
1422
1423
1431
1432
1433
1434
1435
1436
1437
1438

FIG. 8

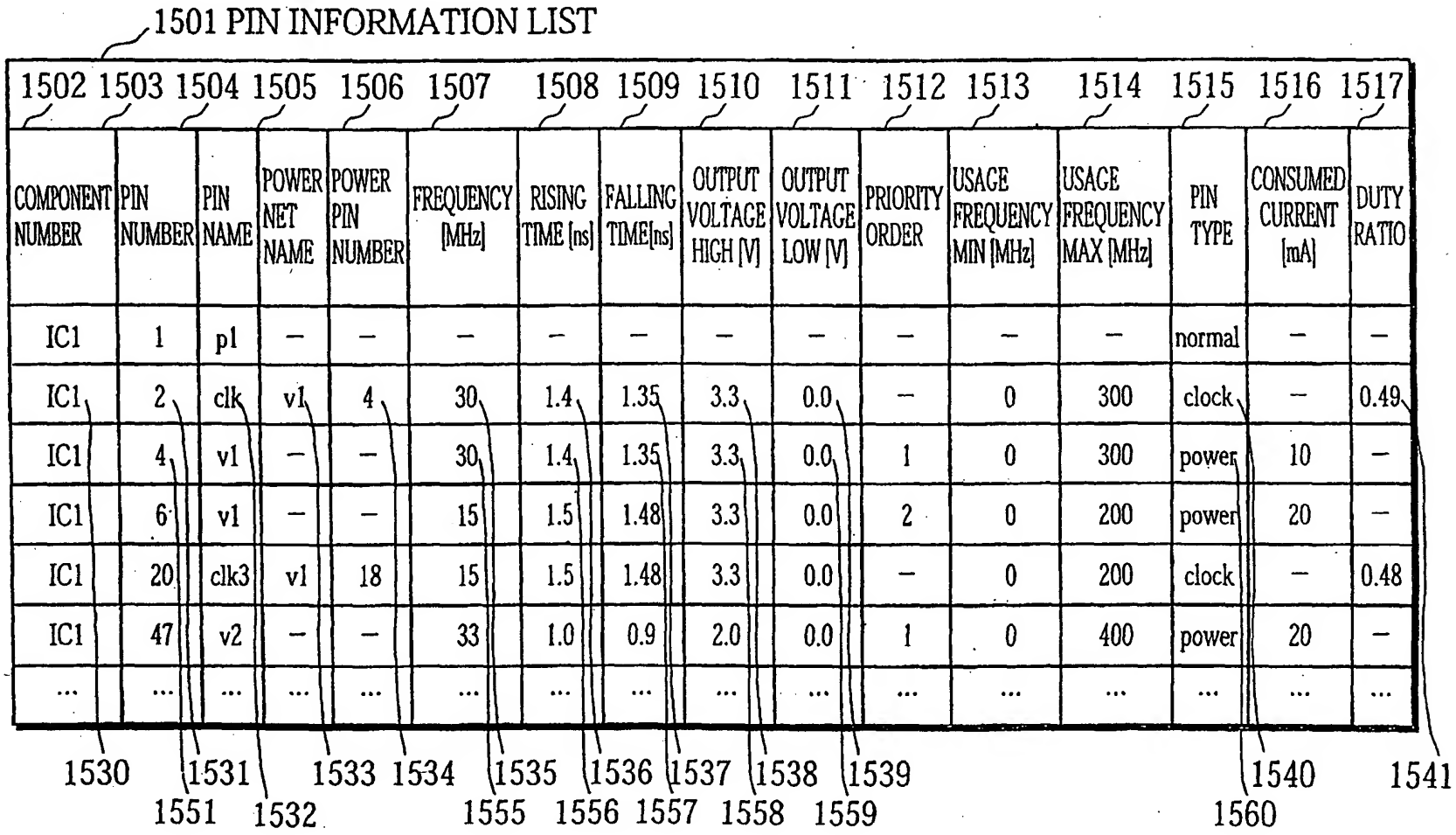
1501 PIN INFORMATION LIST
1502 1503 1504 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514 1515 1516 1517
COMPONENT NUMBER
PIN NUMBER
PIN NAME
POWER NET NAME
POWER PIN NUMBER
FREQUENCY [MHz]
RISING TIME [ns]
FALLING TIME[ns]
OUTPUT VOLTAGE HIGH [V]
OUTPUT VOLTAGE LOW [V]
PRIORITY ORDER
USAGE FREQUENCY MIN [MHz]
USAGE FREQUENCY MAX [MHz]
PIN TYPE
CONSUMED CURRENT [mA]
DUTY RATIO
IC1 1 p1 – – – – – – – – – – normal – –
IC1 2 clk v1 4 30 1.4 1.35 3.3 0.0 – 0 300 clock – 0.49
IC1 4 v1 – – 30 1.4 1.35 3.3 0.0 1 0 300 power 10 –
IC1 6 v1 – – 15 1.5 1.48 3.3 0.0 2 0 200 power 20 –
IC1 20 clk3 v1 18 15 1.5 1.48 3.3 0.0 – 0 200 clock – 0.48
IC1 47 v2 – – 33 1.0 0.9 2.0 0.0 1 0 400 power 20 –
... ...
1530 1531 1533 1534 1535 1536 1537 1538 1539 1540 1541
1551 1532 1555 1556 1557 1558 1559 1560

FIG. 9

1601 EFFECTIVE FREQUENCY SPECTRUM INFORMATION LIST

1602 PIN SPACING [mm]	1603 INDUCTANCE VALUE [nH]	1604 EFFECTIVE FREQUENCY SPECTRUM [MHz]
0−0.5	0.8	(0.1−500)
0.5−1.0	0.9	(0.1−300)
1.0−1.5	1.1	(0.1−100)
1.5−2.0	1.2	(0.1−100)
...	...	...

1610 1611 1612

FIG. 10

1701 COMPONENT SHAPE INFORAMTION LIST

1702 COMPONENT SHAPE	1703 MINIMUM/MAXIMUM DOMAIN	1704 PIN NUMBER	1705 PIN COORDINATES	1706 PIN SPACING [mm]
QFP1	(0,0) – (15,15)	1	(0,3,0,3)	0.2
		2	(0,3,0,5)	
		...	...	
BGA1	(0,0) – (13,13)	1	(0,2,0,2)	0.2
		2	(0,2,0,4)	
		...	...	
SOP1	(0,0) – (10,15)	1	(0,2,0,2)	0.2
		2	(0,2,0,4)	
		...	...	
...	...	...	...	...
SOP11	(0,0) – (1.0,0.5)	1	(0,15,0,25)	0.7
		2	(0,85,0,25)	
...	...	...	...	...

1710 1711 1712 1713

FIG. 11

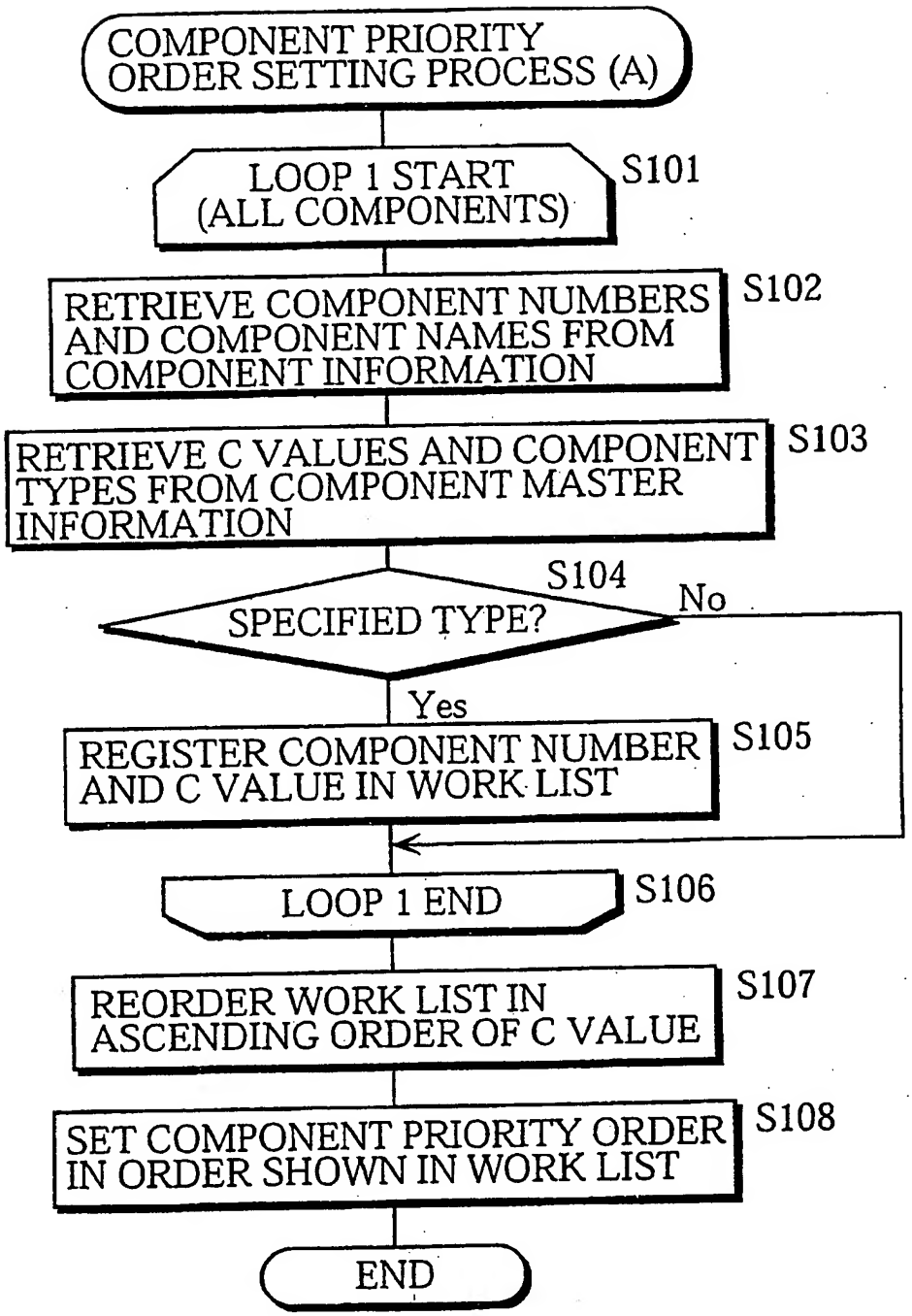
COMPONENT PRIORITY ORDER SETTING PROCESS (A)
LOOP 1 START (ALL COMPONENTS)
S101
RETRIEVE COMPONENT NUMBERS AND COMPONENT NAMES FROM COMPONENT INFORMATION
S102
RETRIEVE C VALUES AND COMPONENT TYPES FROM COMPONENT MASTER INFORMATION
S103
S104
SPECIFIED TYPE?
No
Yes
REGISTER COMPONENT NUMBER AND C VALUE IN WORK LIST
S105
LOOP 1 END
S106
REORDER WORK LIST IN ASCENDING ORDER OF C VALUE
S107
SET COMPONENT PRIORITY ORDER IN ORDER SHOWN IN WORK LIST
S108
END

FIG. 12

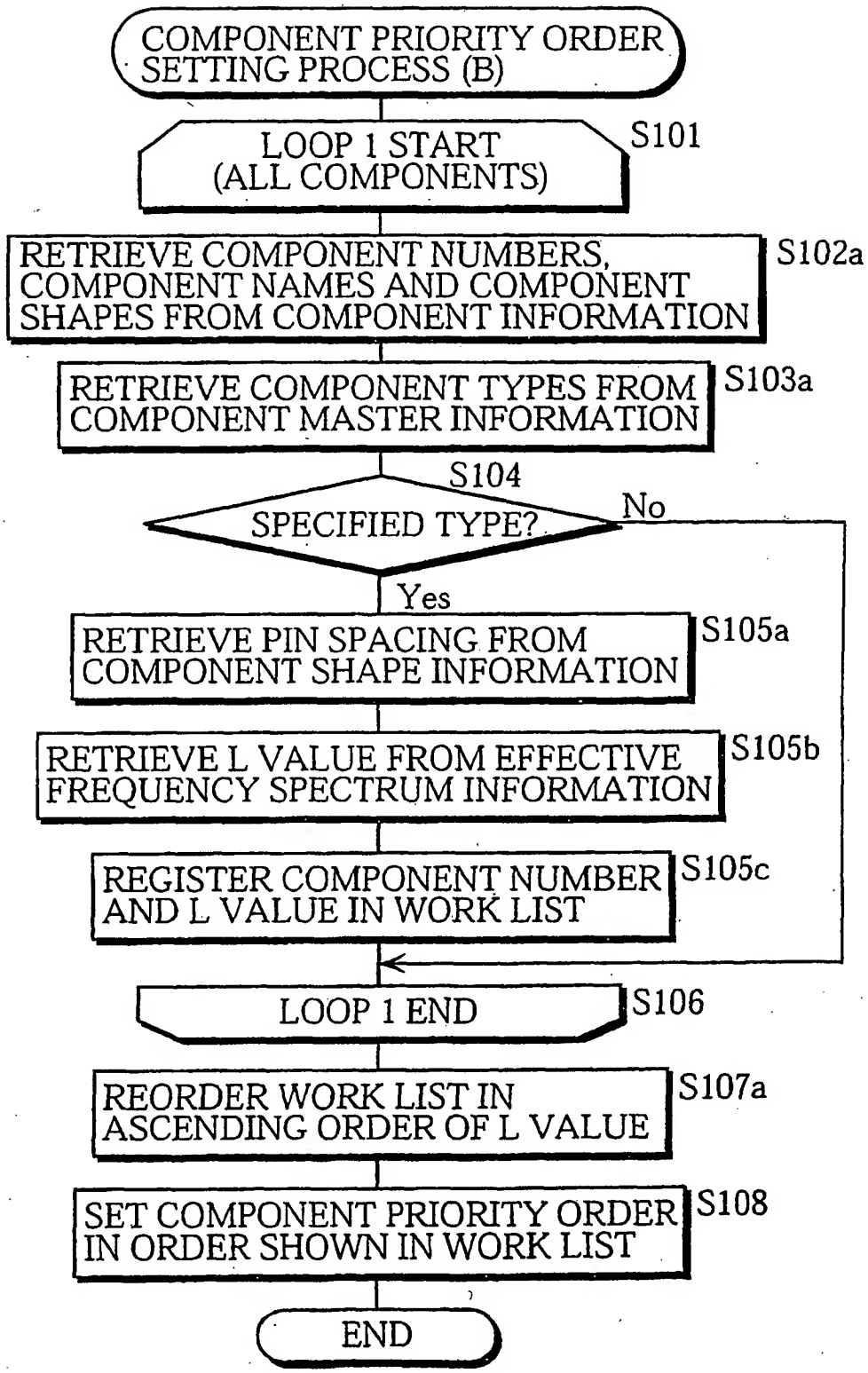
COMPONENT PRIORITY ORDER SETTING PROCESS (B)
LOOP 1 START (ALL COMPONENTS)
S101
RETRIEVE COMPONENT NUMBERS, COMPONENT NAMES AND COMPONENT SHAPES FROM COMPONENT INFORMATION
S102a
RETRIEVE COMPONENT TYPES FROM COMPONENT MASTER INFORMATION
S103a
S104
SPECIFIED TYPE?
No
Yes
RETRIEVE PIN SPACING FROM COMPONENT SHAPE INFORMATION
S105a
RETRIEVE L VALUE FROM EFFECTIVE FREQUENCY SPECTRUM INFORMATION
S105b
REGISTER COMPONENT NUMBER AND L VALUE IN WORK LIST
S105c
LOOP 1 END
S106
REORDER WORK LIST IN ASCENDING ORDER OF L VALUE
S107a
SET COMPONENT PRIORITY ORDER IN ORDER SHOWN IN WORK LIST
S108
END

FIG. 13

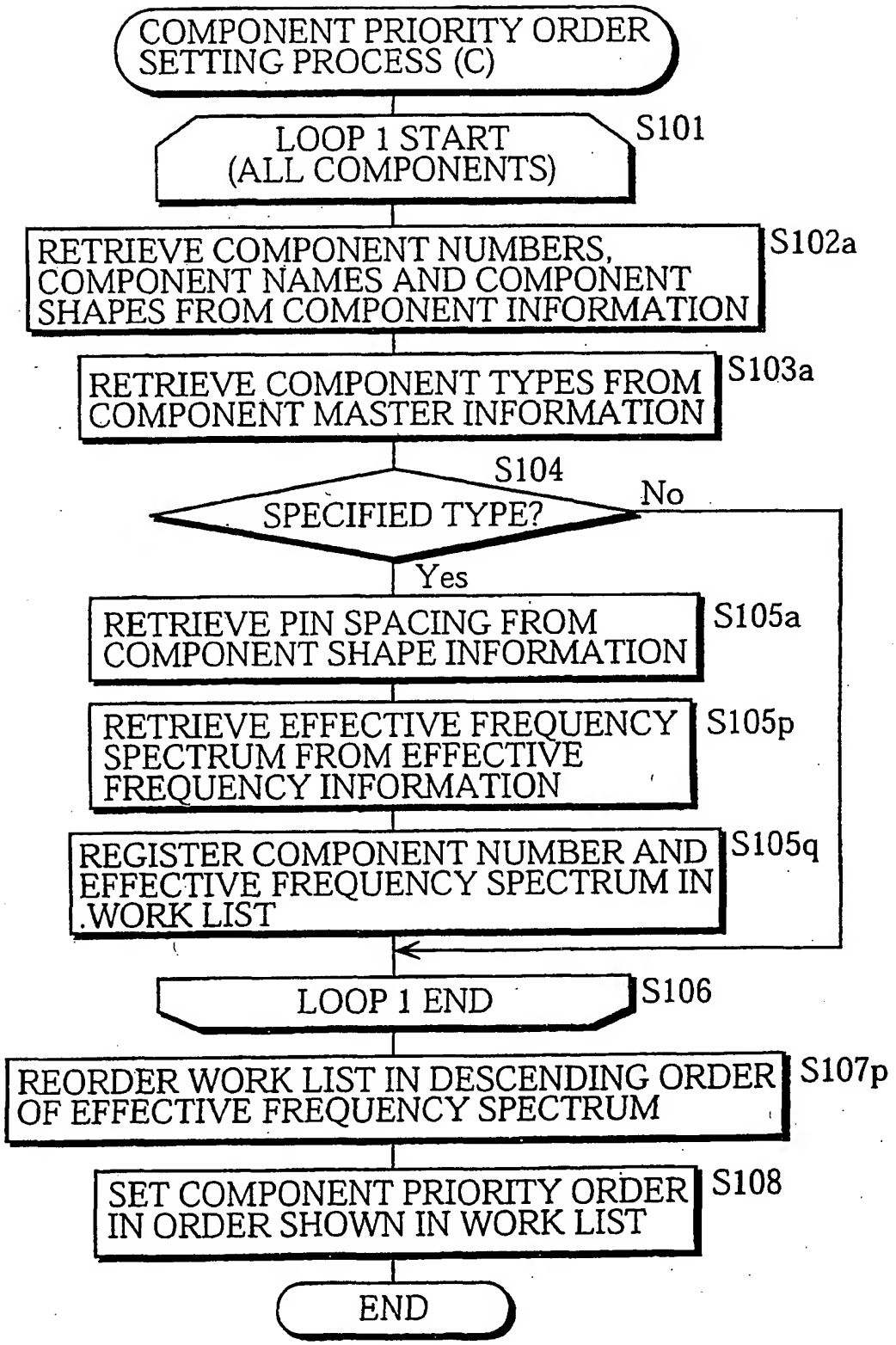
COMPONENT PRIORITY ORDER SETTING PROCESS (C)
LOOP 1 START (ALL COMPONENTS)
S101
RETRIEVE COMPONENT NUMBERS, COMPONENT NAMES AND COMPONENT SHAPES FROM COMPONENT INFORMATION
S102a
RETRIEVE COMPONENT TYPES FROM COMPONENT MASTER INFORMATION
S103a
S104
SPECIFIED TYPE?
No
Yes
RETRIEVE PIN SPACING FROM COMPONENT SHAPE INFORMATION
S105a
RETRIEVE EFFECTIVE FREQUENCY SPECTRUM FROM EFFECTIVE FREQUENCY INFORMATION
S105p
REGISTER COMPONENT NUMBER AND EFFECTIVE FREQUENCY SPECTRUM IN WORK LIST
S105q
LOOP 1 END
S106
REORDER WORK LIST IN DESCENDING ORDER OF EFFECTIVE FREQUENCY SPECTRUM
S107p
SET COMPONENT PRIORITY ORDER IN ORDER SHOWN IN WORK LIST
S108
END

FIG. 14

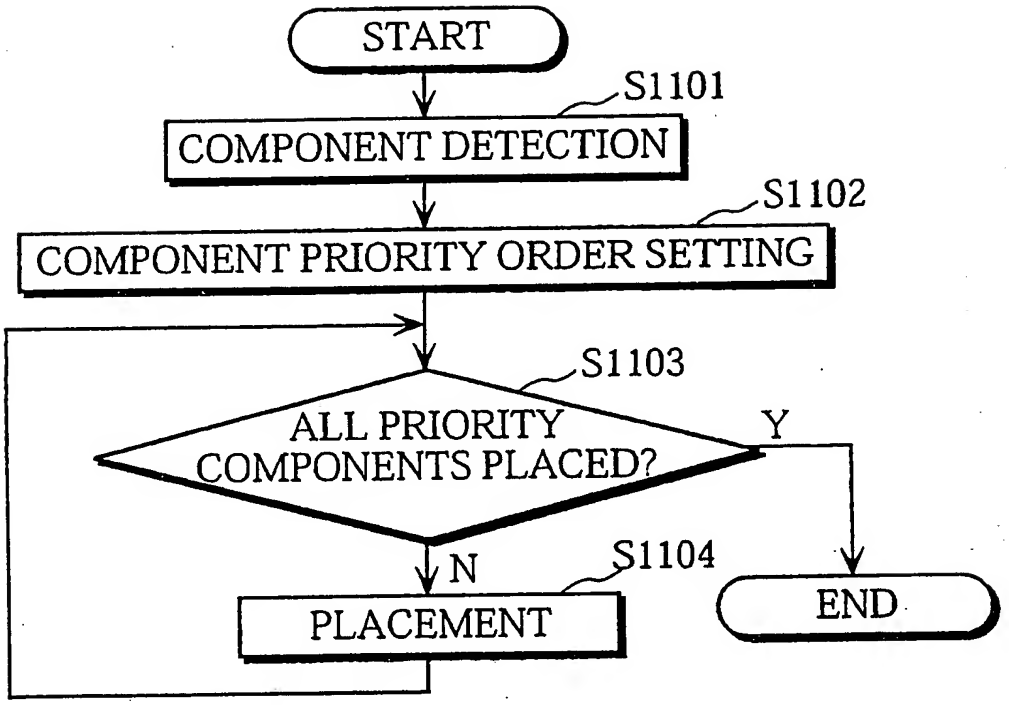
START
S1101
COMPONENT DETECTION
S1102
COMPONENT PRIORITY ORDER SETTING
S1103
ALL PRIORITY COMPONENTS PLACED?
Y
N
S1104
PLACEMENT
END

FIG. 15

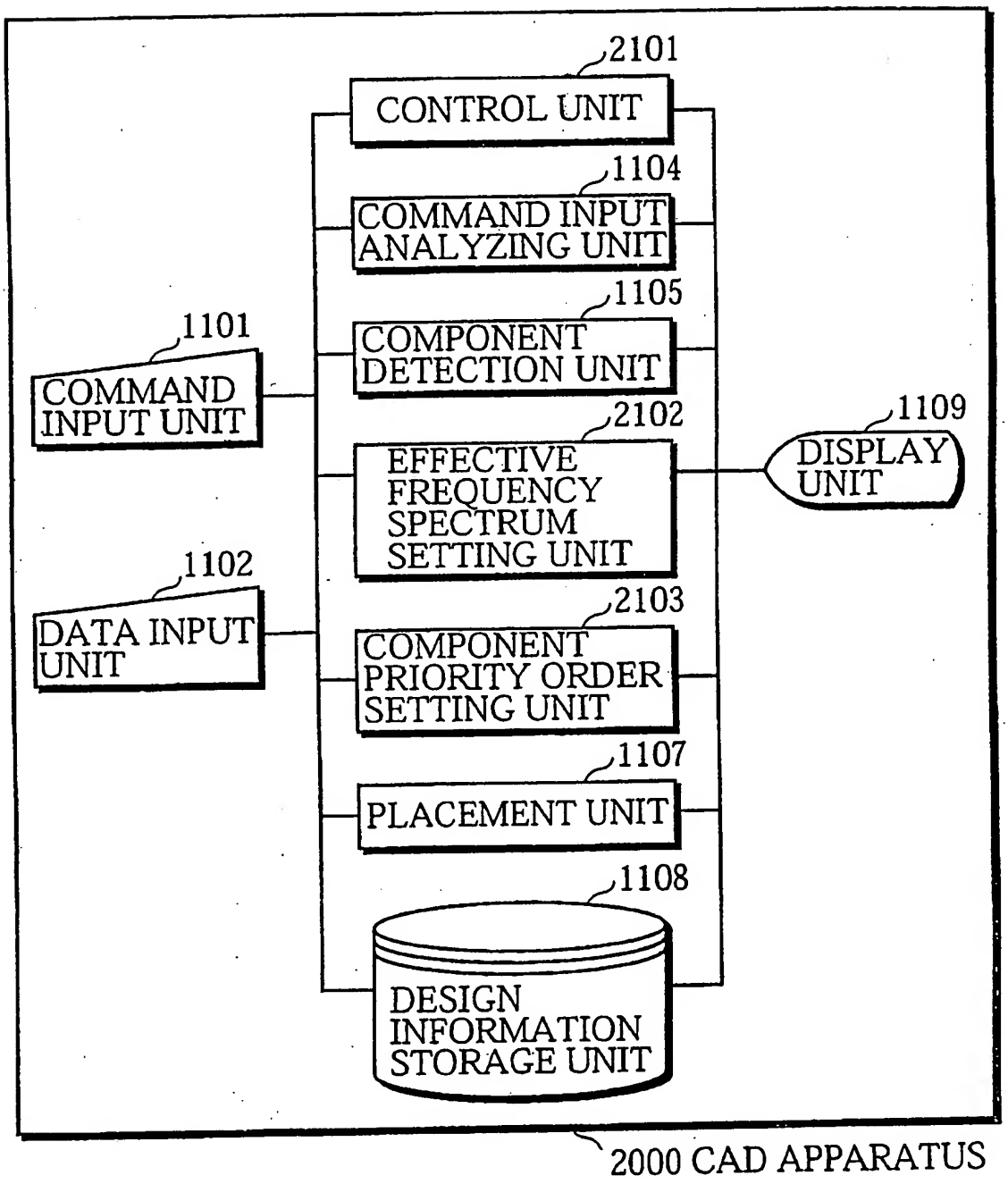
2101
CONTROL UNIT
1104
COMMAND INPUT ANALYZING UNIT
1105
COMPONENT DETECTION UNIT
1101
COMMAND INPUT UNIT
2102
EFFECTIVE FREQUENCY SPECTRUM SETTING UNIT
1109
DISPLAY UNIT
1102
DATA INPUT UNIT
2103
COMPONENT PRIORITY ORDER SETTING UNIT
1107
PLACEMENT UNIT
1108
DESIGN INFORMATION STORAGE UNIT
2000 CAD APPARATUS

FIG. 16

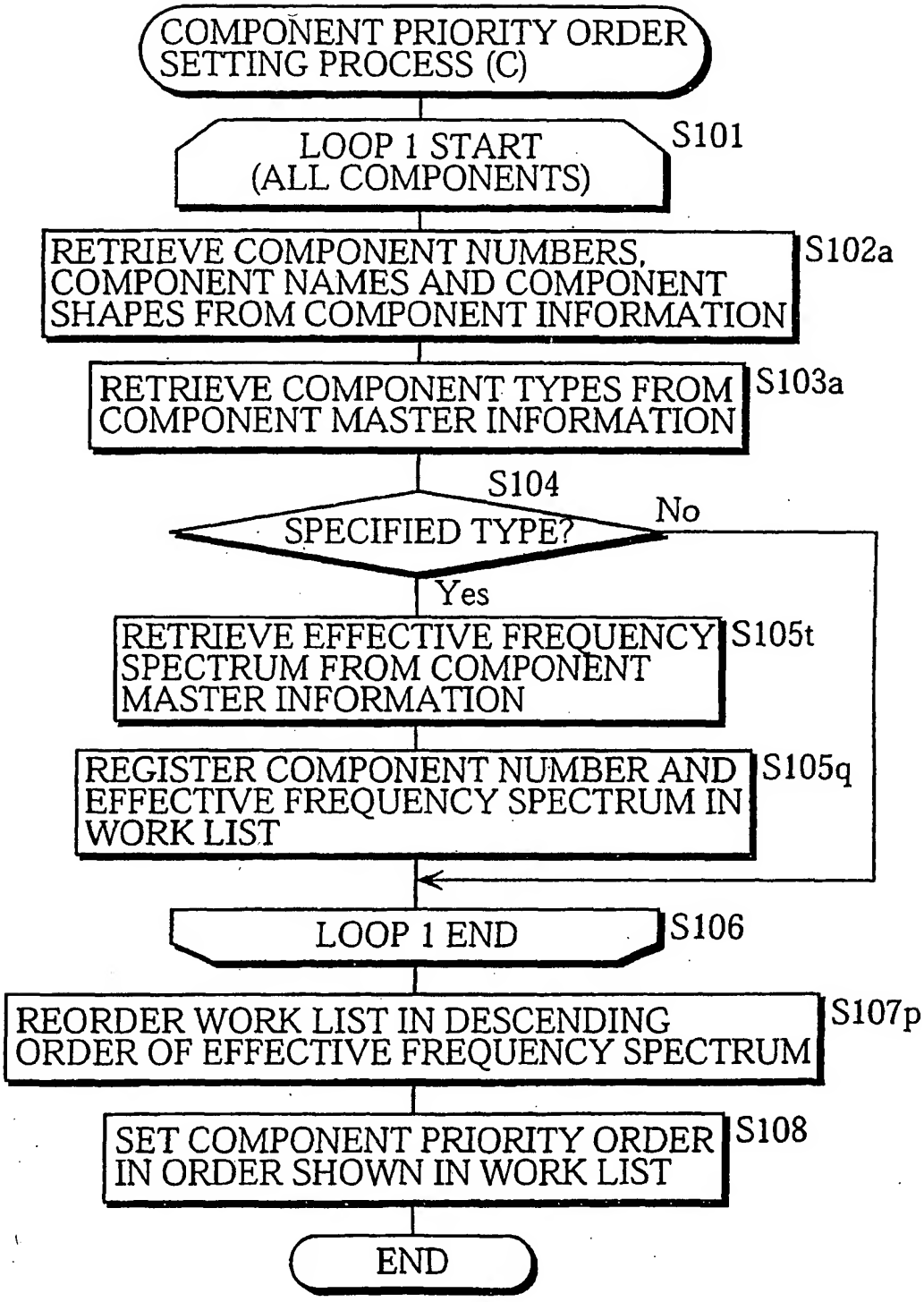
COMPONENT PRIORITY ORDER SETTING PROCESS (C)
LOOP 1 START (ALL COMPONENTS)
S101
RETRIEVE COMPONENT NUMBERS, COMPONENT NAMES AND COMPONENT SHAPES FROM COMPONENT INFORMATION
S102a
RETRIEVE COMPONENT TYPES FROM COMPONENT MASTER INFORMATION
S103a
S104
SPECIFIED TYPE?
No
Yes
RETRIEVE EFFECTIVE FREQUENCY SPECTRUM FROM COMPONENT MASTER INFORMATION
S105t
REGISTER COMPONENT NUMBER AND EFFECTIVE FREQUENCY SPECTRUM IN WORK LIST
S105q
LOOP 1 END
S106
REORDER WORK LIST IN DESCENDING ORDER OF EFFECTIVE FREQUENCY SPECTRUM
S107p
SET COMPONENT PRIORITY ORDER IN ORDER SHOWN IN WORK LIST
S108
END

FIG. 17

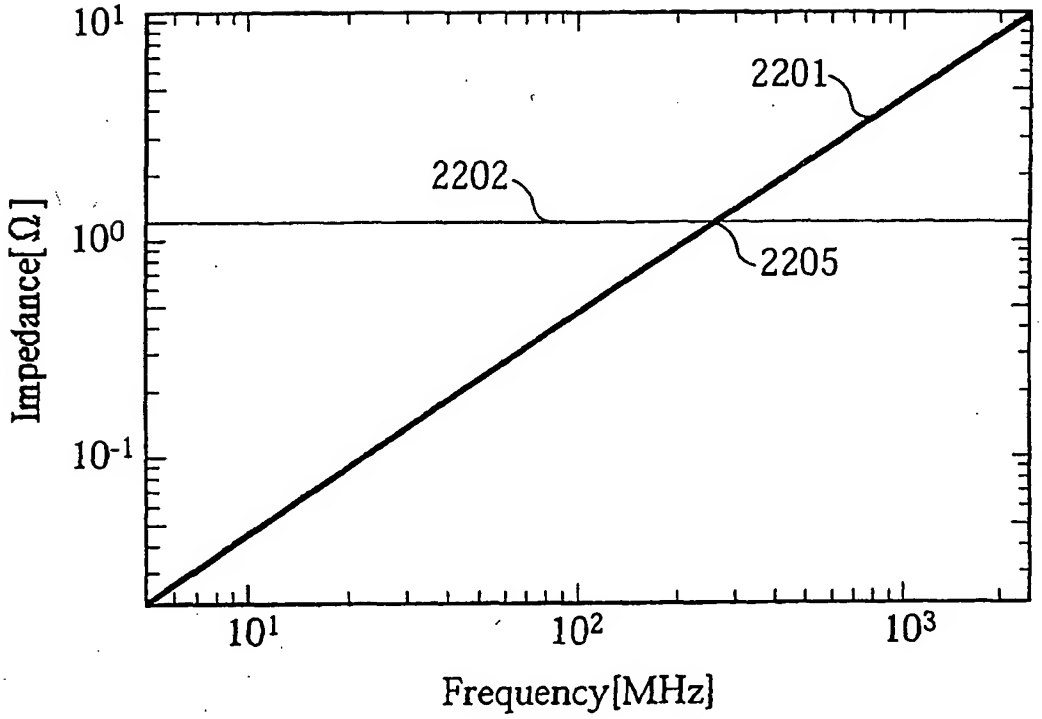
10^1
10^0
10^{-1}
Impedance[Ω]
2201
2202
2205
10^1
10^2
10^3
Frequency[MHz]

FIG. 18

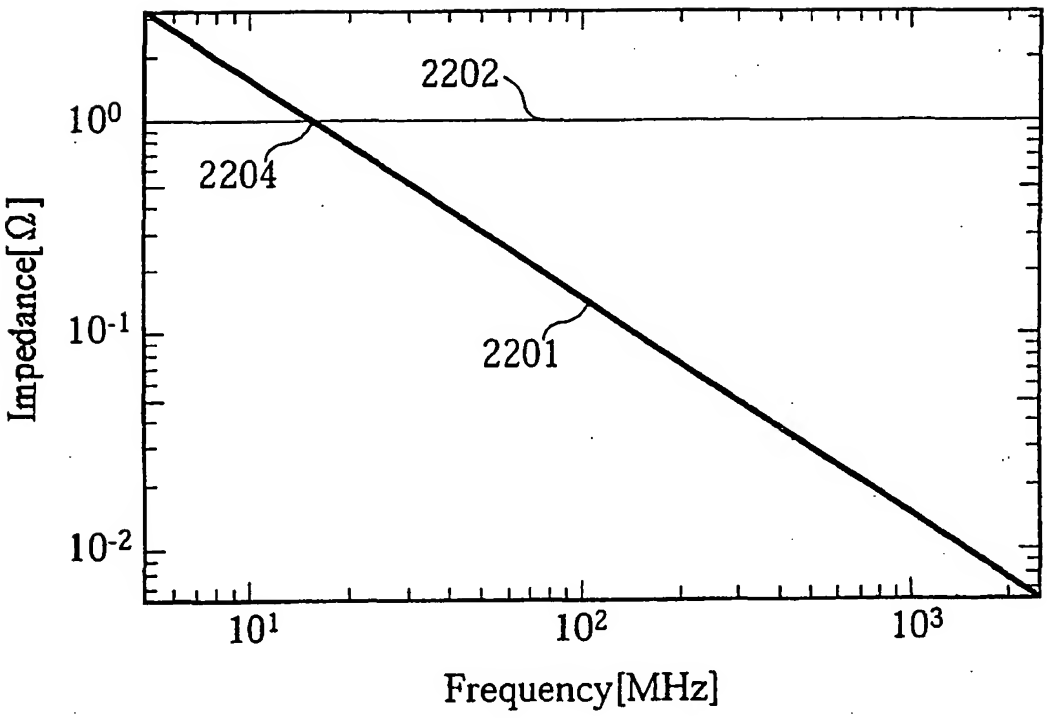
2202
2204
2201
10^0
10^{-1}
10^{-2}
Impedance[Ω]
10^1
10^2
10^3
Frequency[MHz]

FIG. 19

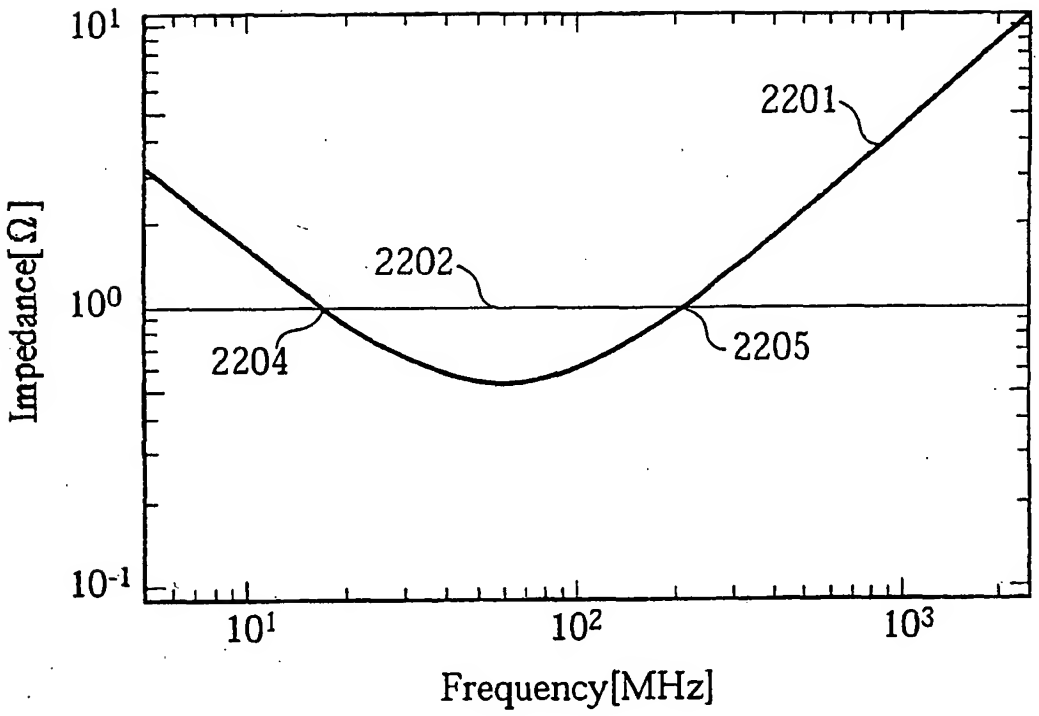
10^1
10^0
10^{-1}
Impedance[Ω]
2201
2202
2204
2205
10^1
10^2
10^3
Frequency[MHz]

FIG. 20

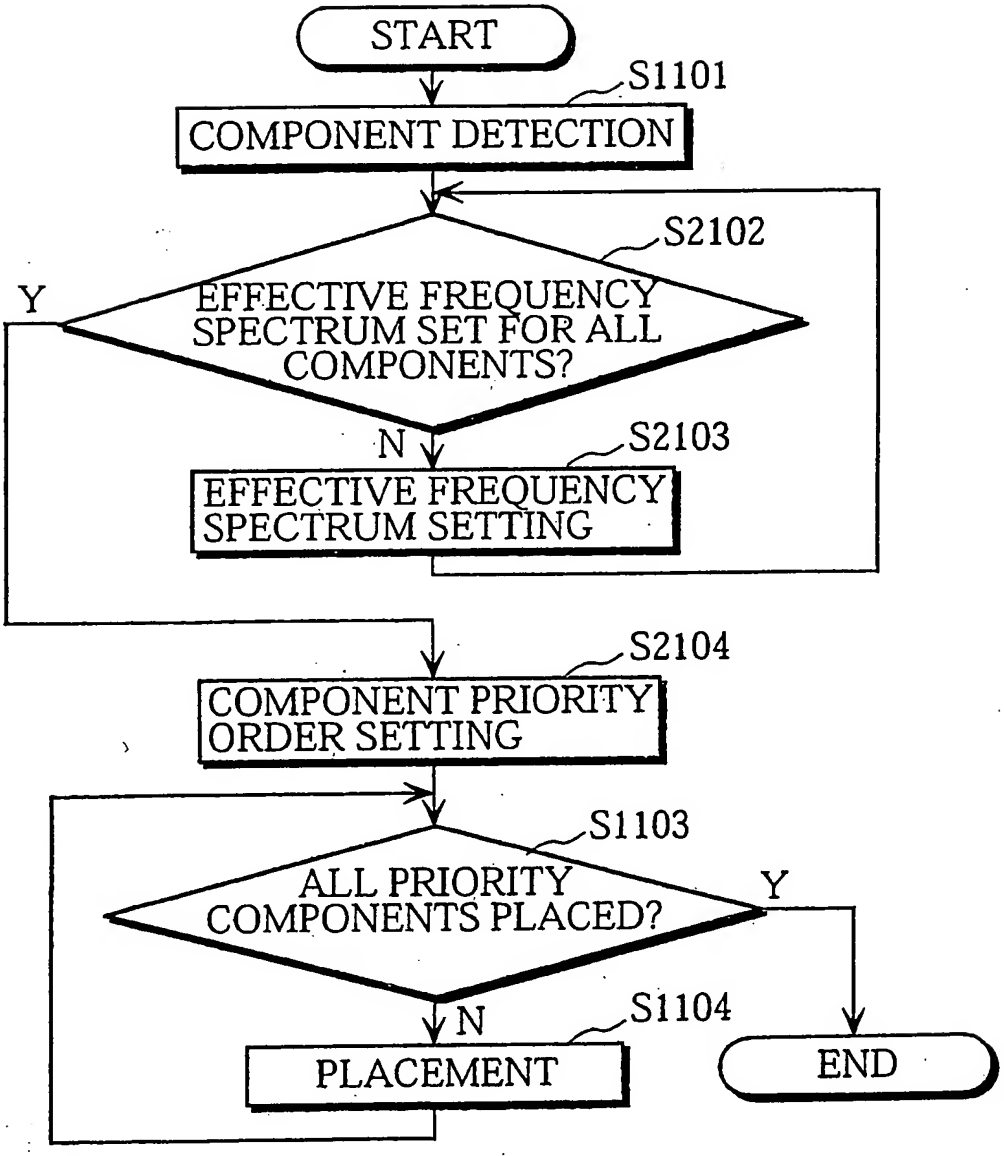
START
S1101
COMPONENT DETECTION
S2102
EFFECTIVE FREQUENCY SPECTRUM SET FOR ALL COMPONENTS?
Y
N
S2103
EFFECTIVE FREQUENCY SPECTRUM SETTING
S2104
COMPONENT PRIORITY ORDER SETTING
S1103
ALL PRIORITY COMPONENTS PLACED?
Y
N
S1104
PLACEMENT
END

FIG. 21

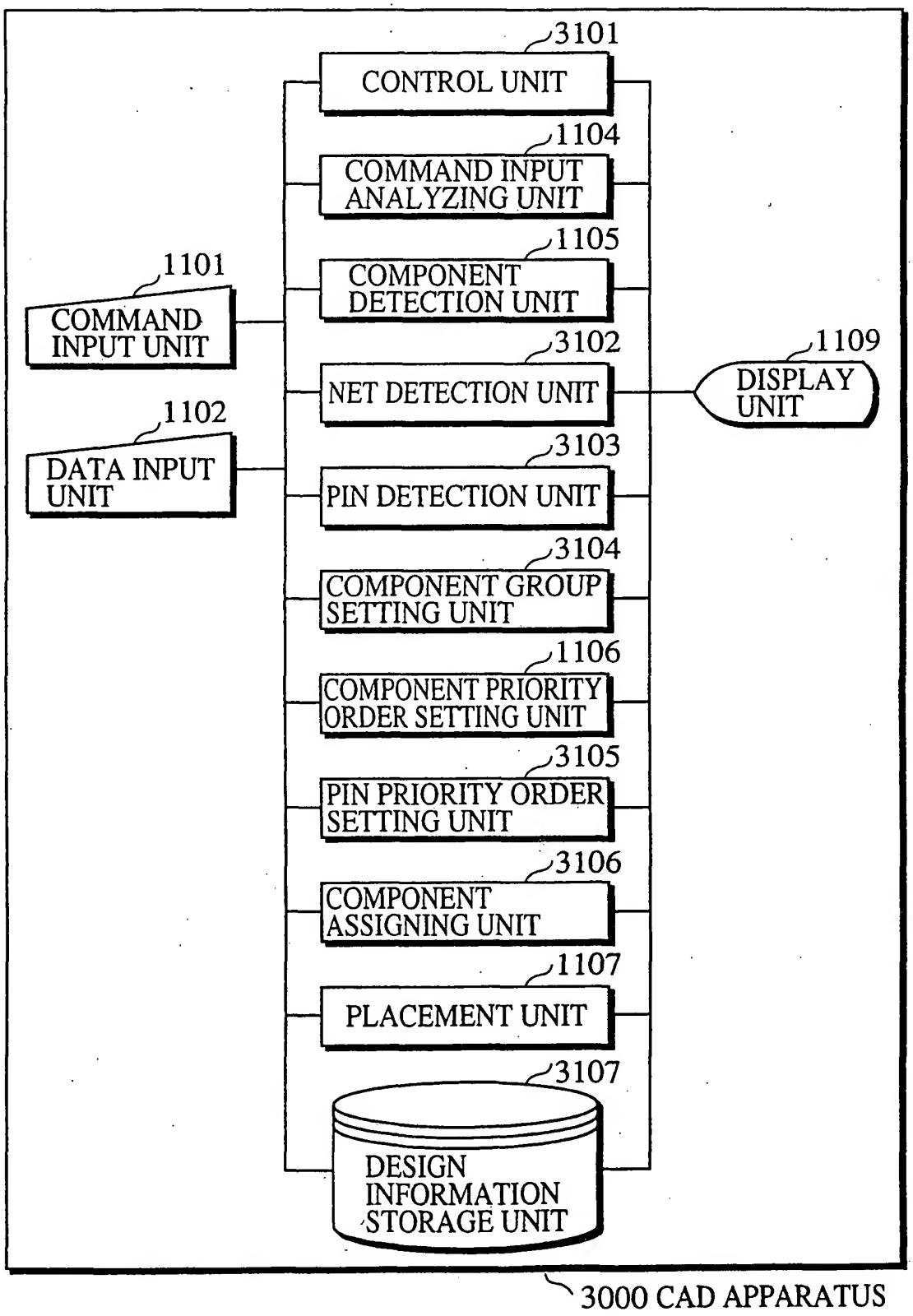
3101
CONTROL UNIT
1104
COMMAND INPUT ANALYZING UNIT
1105
COMPONENT DETECTION UNIT
1101
COMMAND INPUT UNIT
3102
NET DETECTION UNIT
1109
DISPLAY UNIT
1102
DATA INPUT UNIT
3103
PIN DETECTION UNIT
3104
COMPONENT GROUP SETTING UNIT
1106
COMPONENT PRIORITY ORDER SETTING UNIT
3105
PIN PRIORITY ORDER SETTING UNIT
3106
COMPONENT ASSIGNING UNIT
1107
PLACEMENT UNIT
3107
DESIGN INFORMATION STORAGE UNIT
3000 CAD APPARATUS

FIG. 22

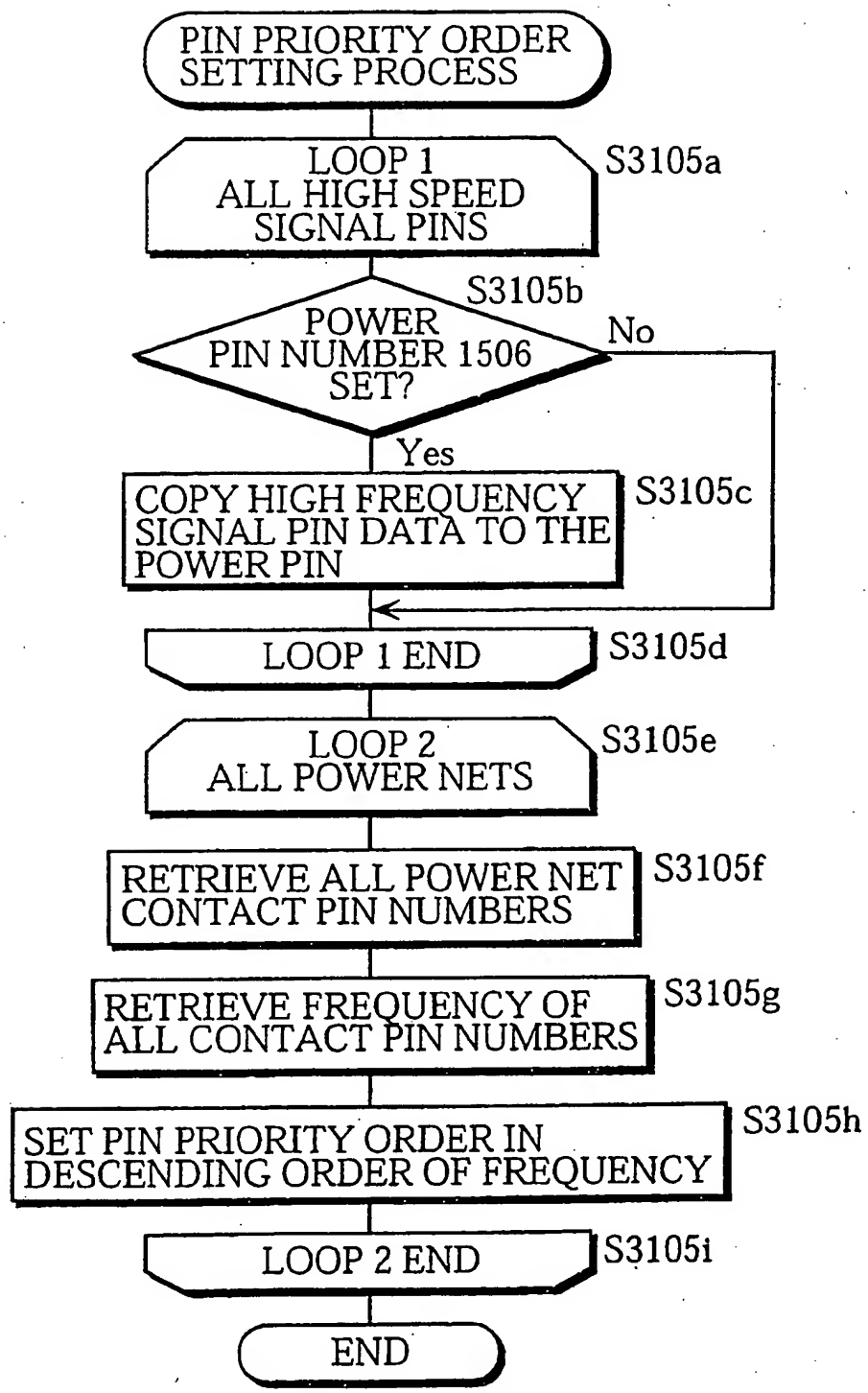
PIN PRIORITY ORDER SETTING PROCESS
LOOP 1 ALL HIGH SPEED SIGNAL PINS
S3105a
S3105b
POWER PIN NUMBER 1506 SET?
No
Yes
COPY HIGH FREQUENCY SIGNAL PIN DATA TO THE POWER PIN
S3105c
LOOP 1 END
S3105d
LOOP 2 ALL POWER NETS
S3105e
RETRIEVE ALL POWER NET CONTACT PIN NUMBERS
S3105f
RETRIEVE FREQUENCY OF ALL CONTACT PIN NUMBERS
S3105g
SET PIN PRIORITY ORDER IN DESCENDING ORDER OF FREQUENCY
S3105h
LOOP 2 END
S3105i
END

FIG. 23

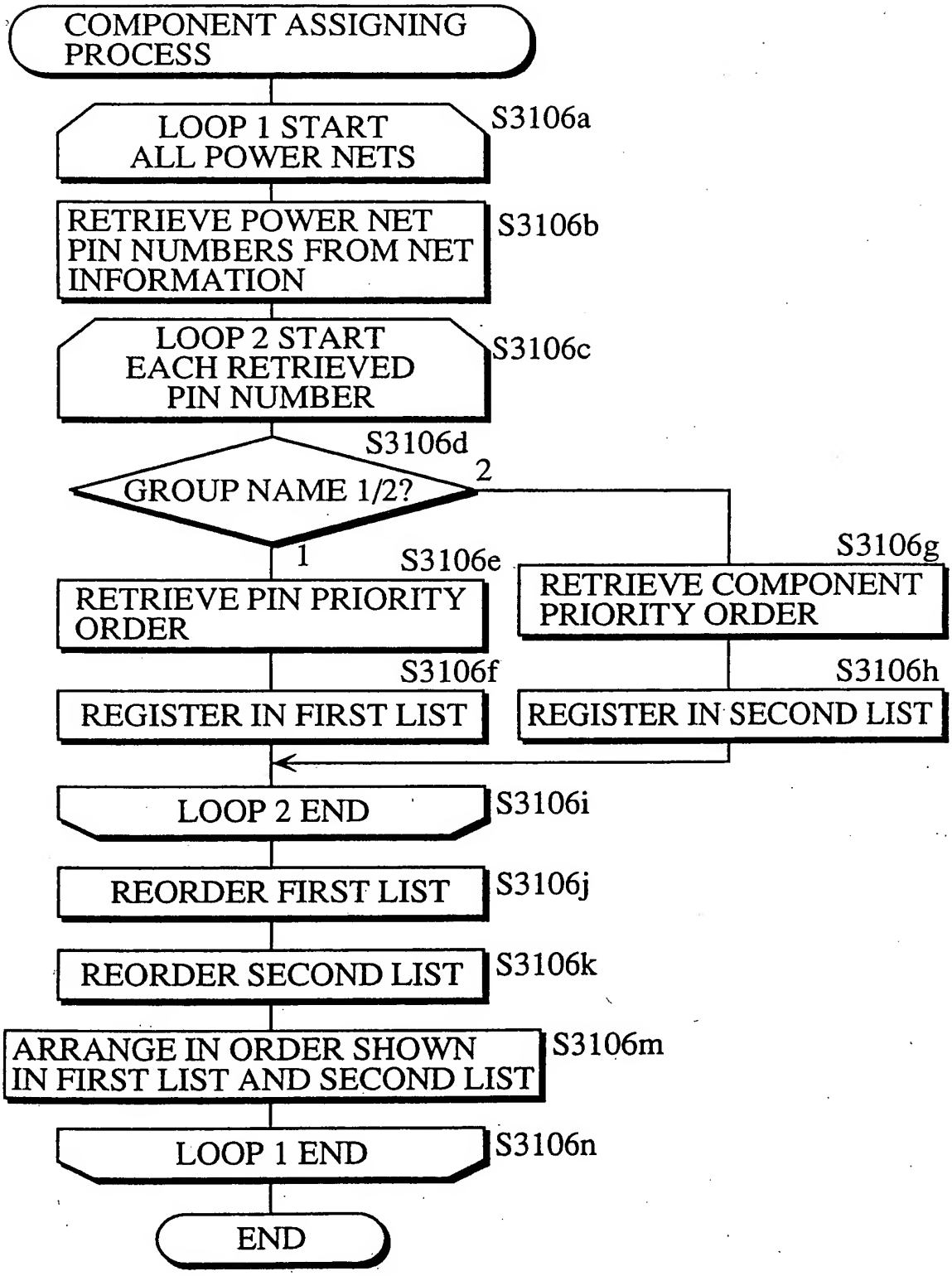
COMPONENT ASSIGNING PROCESS
LOOP 1 START ALL POWER NETS
S3106a
RETRIEVE POWER NET PIN NUMBERS FROM NET INFORMATION
S3106b
LOOP 2 START EACH RETRIEVED PIN NUMBER
S3106c
S3106d
GROUP NAME 1/2?
1
2
S3106e
RETRIEVE PIN PRIORITY ORDER
S3106g
RETRIEVE COMPONENT PRIORITY ORDER
S3106f
REGISTER IN FIRST LIST
S3106h
REGISTER IN SECOND LIST
LOOP 2 END
S3106i
REORDER FIRST LIST
S3106j
REORDER SECOND LIST
S3106k
ARRANGE IN ORDER SHOWN IN FIRST LIST AND SECOND LIST
S3106m
LOOP 1 END
S3106n
END

FIG. 24

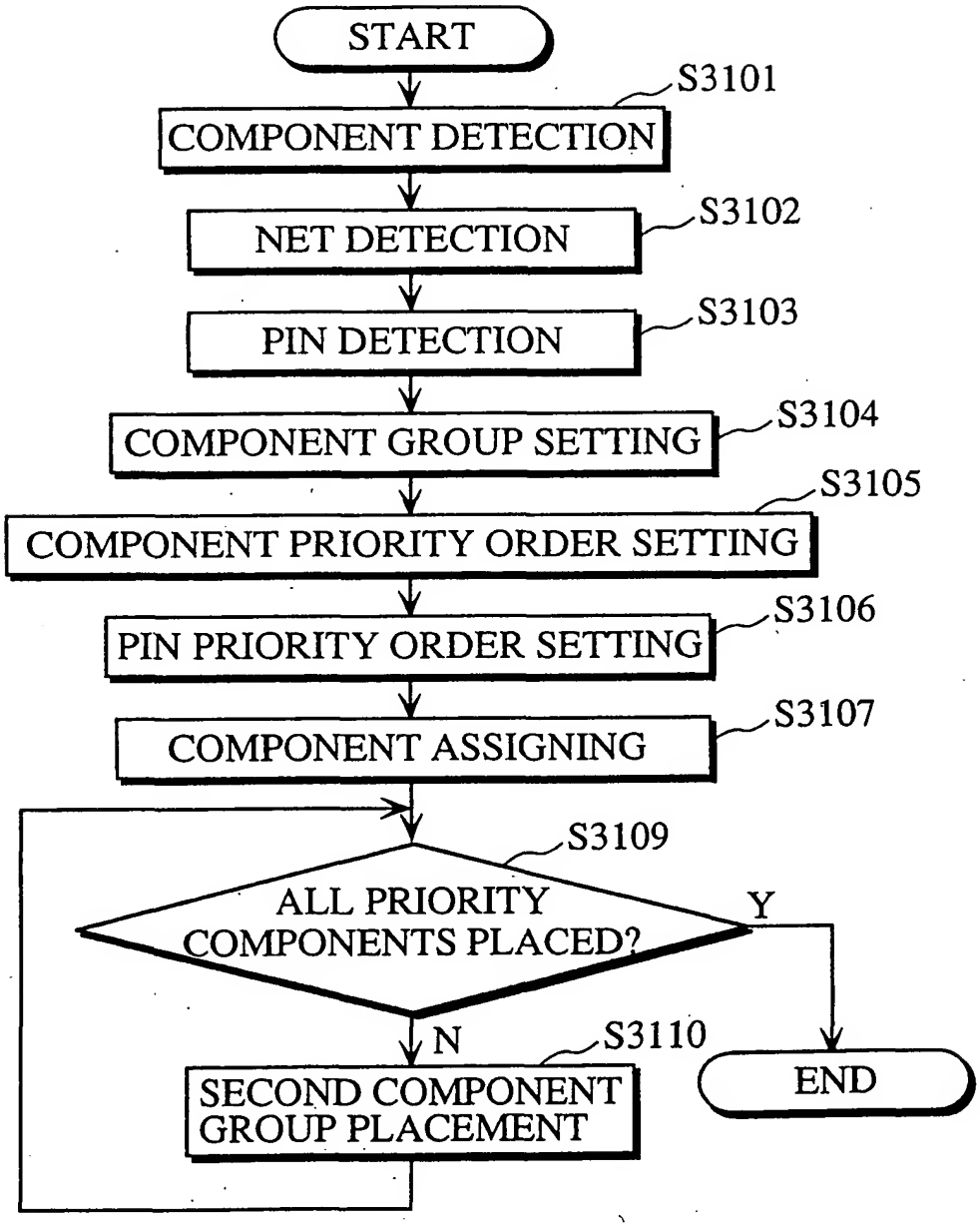
START
S3101
COMPONENT DETECTION
S3102
NET DETECTION
S3103
PIN DETECTION
S3104
COMPONENT GROUP SETTING
S3105
COMPONENT PRIORITY ORDER SETTING
S3106
PIN PRIORITY ORDER SETTING
S3107
COMPONENT ASSIGNING
S3109
ALL PRIORITY COMPONENTS PLACED?
Y
N
S3110
SECOND COMPONENT GROUP PLACEMENT
END

FIG. 25

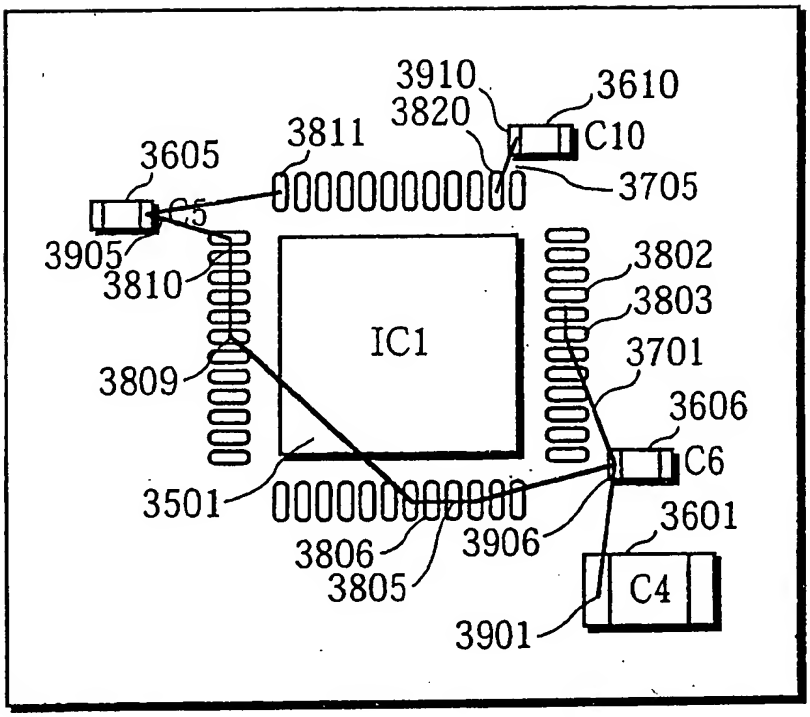
3910
3610
3820
C10
3811
3605
3705
C5
3905
3810
3802
3803
IC1
3809
3701
3606
C6
3501
3601
3906
3806
3805
C4
3901

FIG. 26

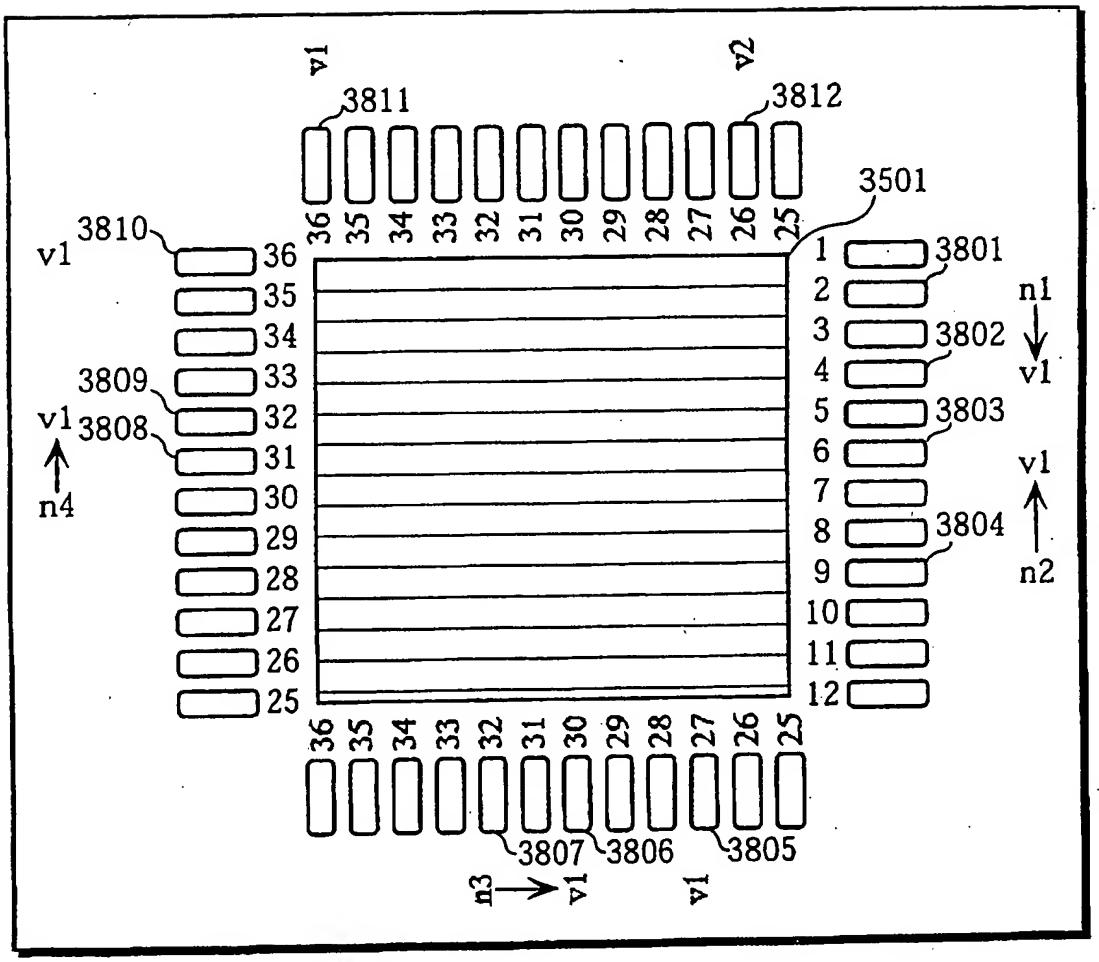
v1
v2
3811
3812
3501
3810
3801
3809
3802
3808
3803
3804
3807
3806
3805
n1
n2
n3
n4
36
35
34
33
32
31
30
29
28
27
26
25
1
2
3
4
5
6
7
8
9
10
11
12

FIG. 27

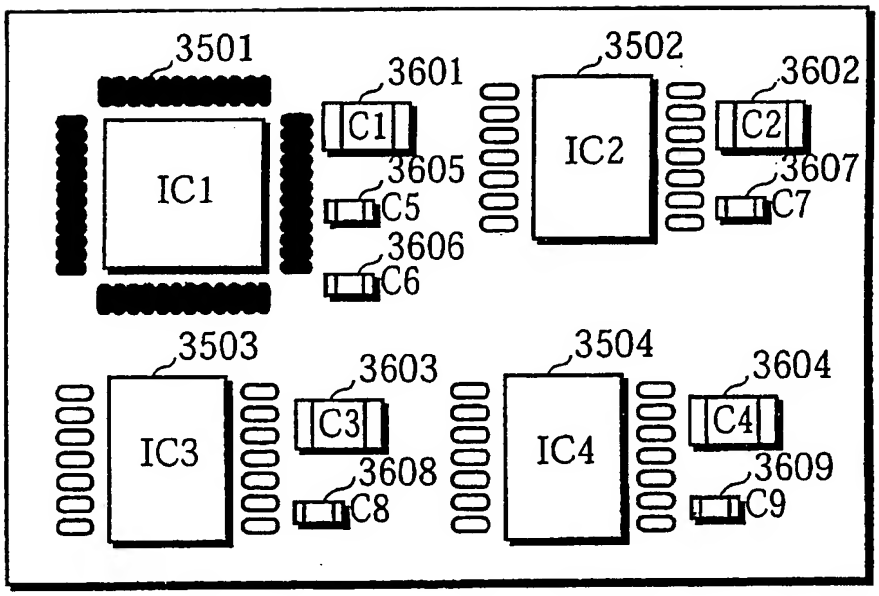
3501
IC1
3601
C1
3605
C5
3606
C6
3502
IC2
3602
C2
3607
C7
3503
IC3
3603
C3
3608
C8
3504
IC4
3604
C4
3609
C9

FIG. 28

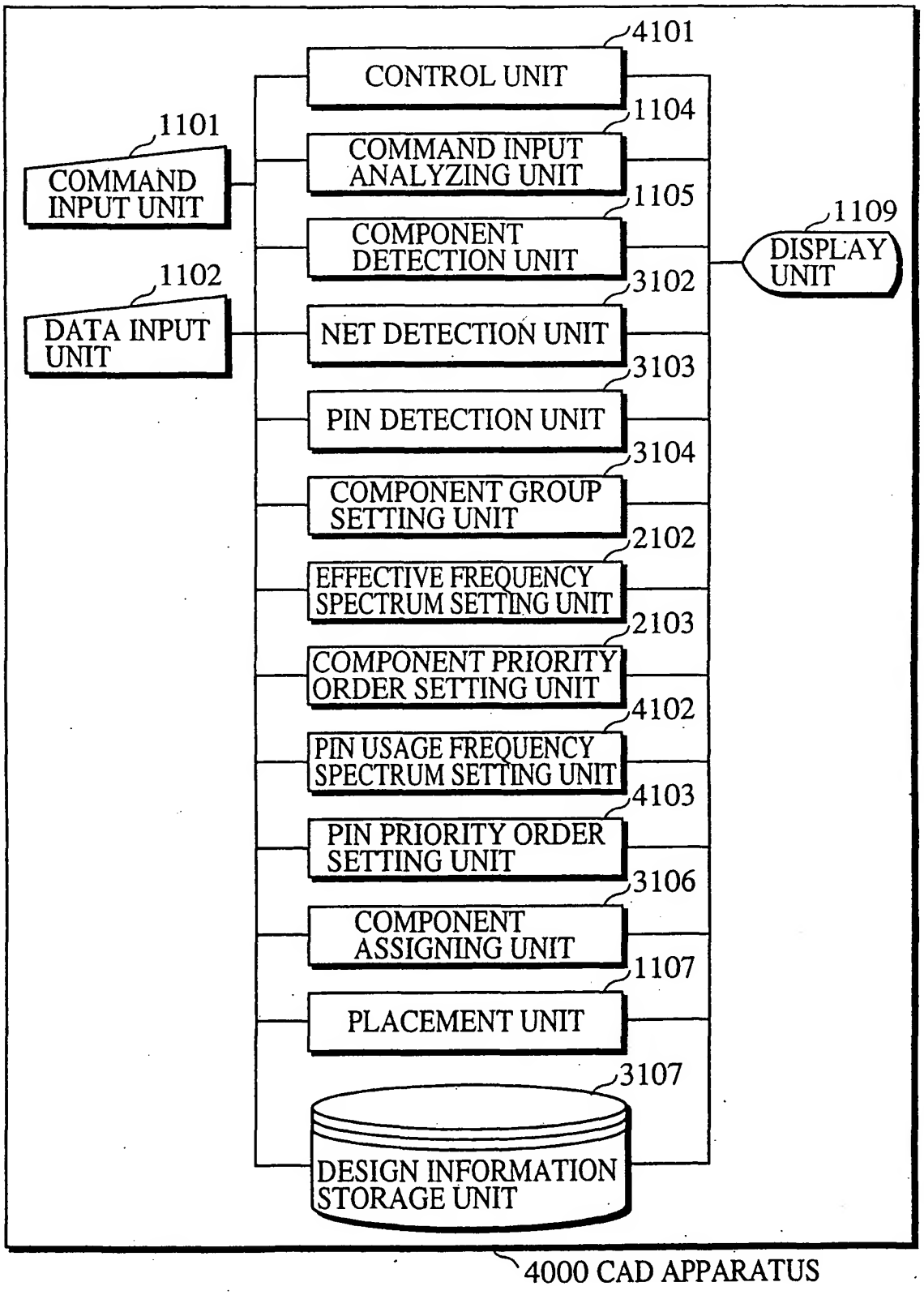
4101
CONTROL UNIT
1104
COMMAND INPUT ANALYZING UNIT
1105
COMPONENT DETECTION UNIT
3102
NET DETECTION UNIT
3103
PIN DETECTION UNIT
3104
COMPONENT GROUP SETTING UNIT
2102
EFFECTIVE FREQUENCY SPECTRUM SETTING UNIT
2103
COMPONENT PRIORITY ORDER SETTING UNIT
4102
PIN USAGE FREQUENCY SPECTRUM SETTING UNIT
4103
PIN PRIORITY ORDER SETTING UNIT
3106
COMPONENT ASSIGNING UNIT
1107
PLACEMENT UNIT
3107
DESIGN INFORMATION STORAGE UNIT
1101
COMMAND INPUT UNIT
1102
DATA INPUT UNIT
1109
DISPLAY UNIT
4000 CAD APPARATUS

FIG. 29

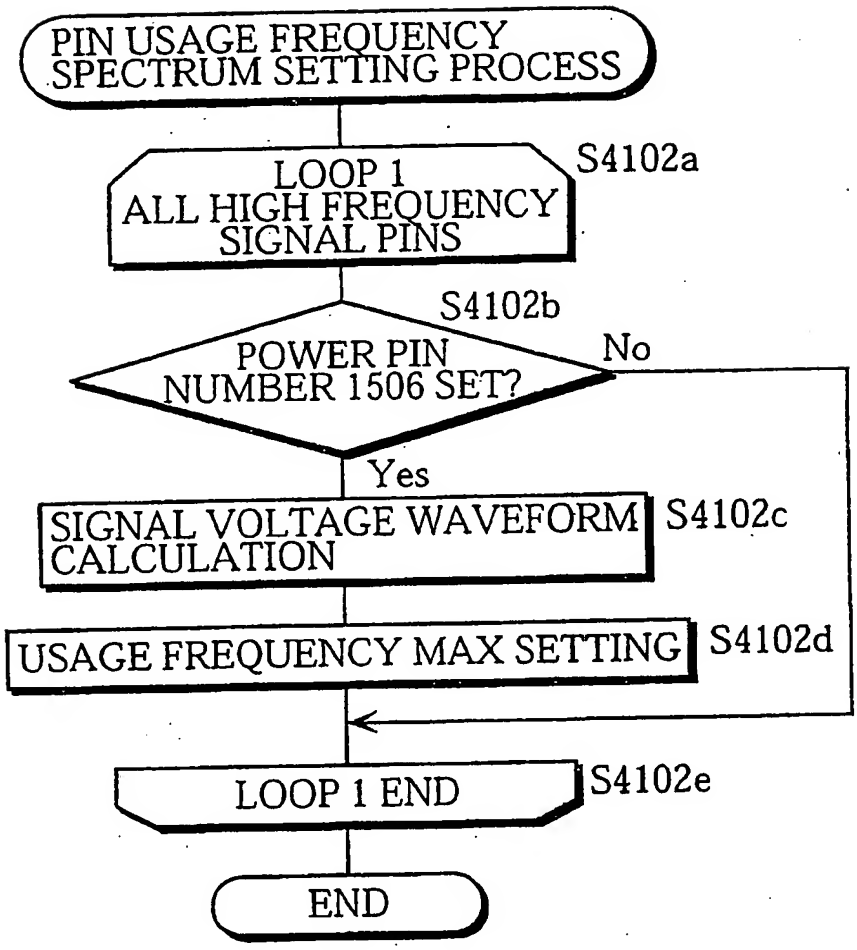
PIN USAGE FREQUENCY SPECTRUM SETTING PROCESS
LOOP 1 ALL HIGH FREQUENCY SIGNAL PINS
S4102a
S4102b
POWER PIN NUMBER 1506 SET?
No
Yes
SIGNAL VOLTAGE WAVEFORM CALCULATION
S4102c
USAGE FREQUENCY MAX SETTING
S4102d
LOOP 1 END
S4102e
END

FIG. 30

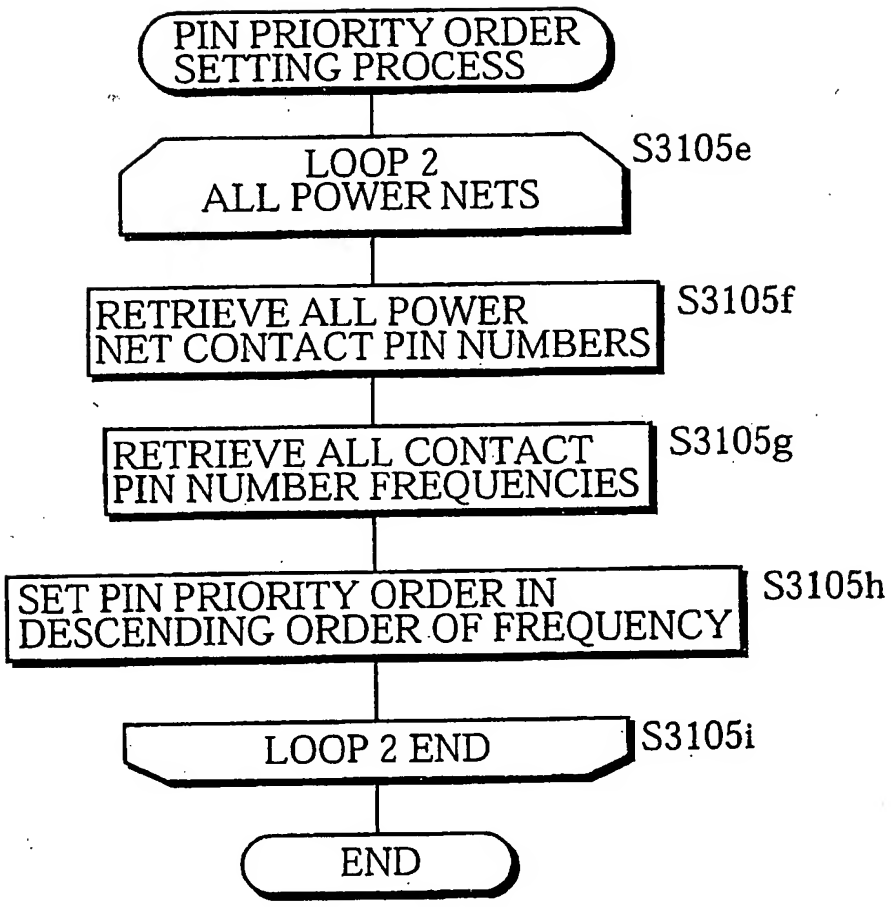
PIN PRIORITY ORDER SETTING PROCESS
LOOP 2 ALL POWER NETS
S3105e
RETRIEVE ALL POWER NET CONTACT PIN NUMBERS
S3105f
RETRIEVE ALL CONTACT PIN NUMBER FREQUENCIES
S3105g
SET PIN PRIORITY ORDER IN DESCENDING ORDER OF FREQUENCY
S3105h
LOOP 2 END
S3105i
END

FIG. 31

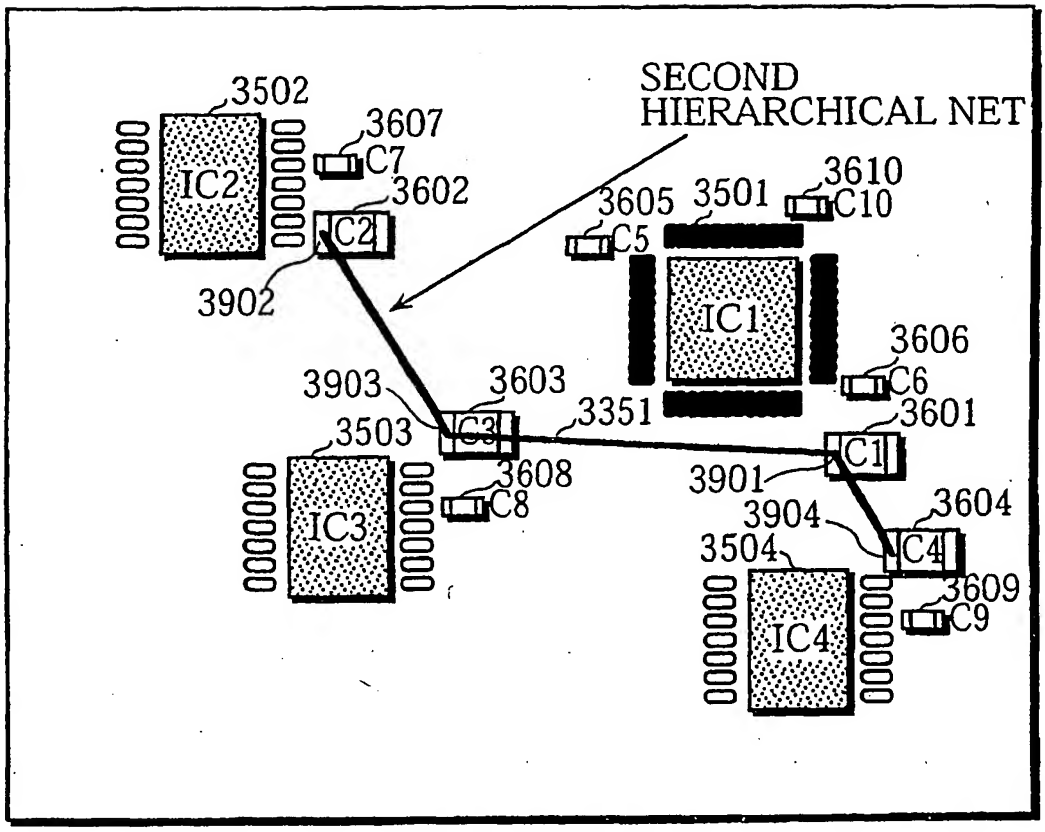
SECOND
HIERARCHICAL NET
3502
3607
C7
IC2
3602
C2
3902
3605
3501
3610
C10
C5
IC1
3606
C6
3903
3603
3351
3601
3503
C3
C1
3608
C8
3901
IC3
3904
3604
C4
3504
3609
C9
IC4

FIG. 32

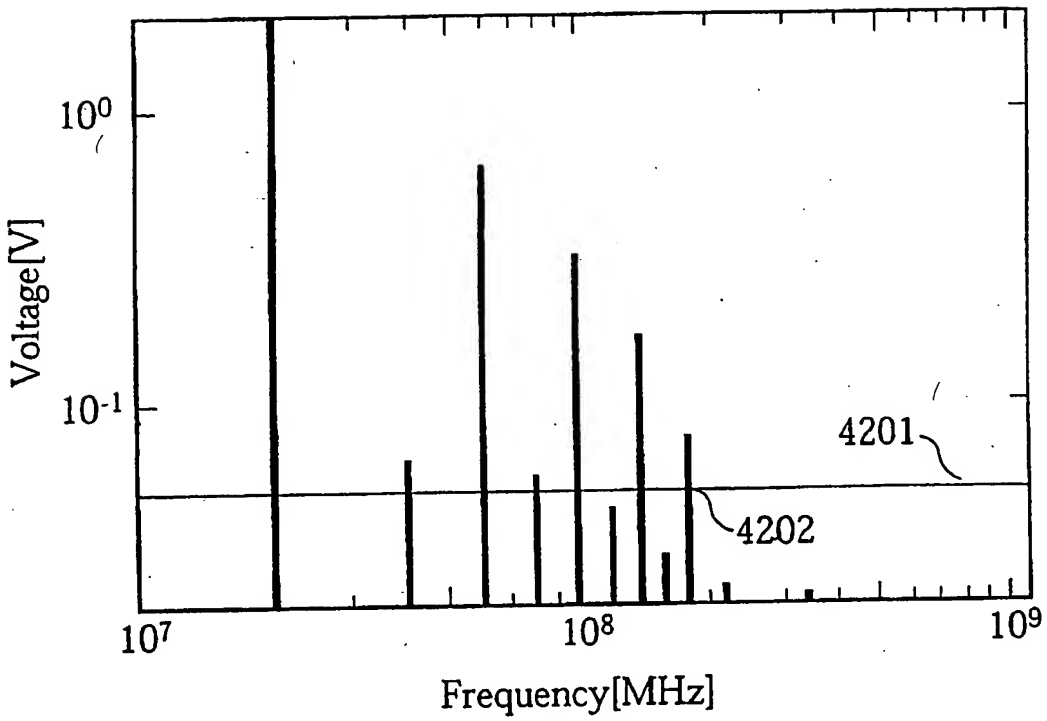

FIG. 33

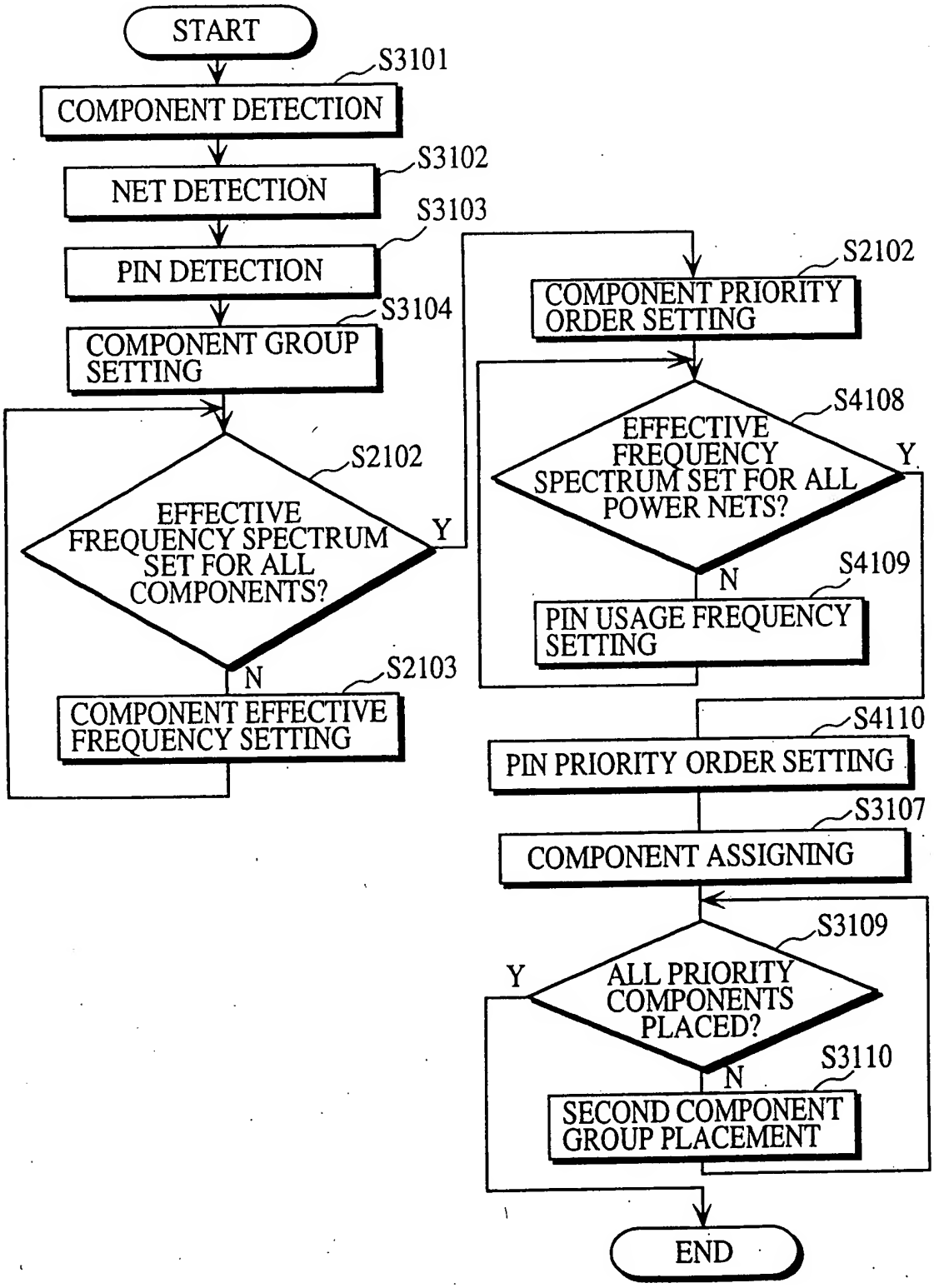
START
S3101
COMPONENT DETECTION
S3102
NET DETECTION
S3103
PIN DETECTION
S3104
COMPONENT GROUP SETTING
S2102
EFFECTIVE FREQUENCY SPECTRUM SET FOR ALL COMPONENTS?
Y
N
S2103
COMPONENT EFFECTIVE FREQUENCY SETTING
S2102
COMPONENT PRIORITY ORDER SETTING
S4108
EFFECTIVE FREQUENCY SPECTRUM SET FOR ALL POWER NETS?
Y
N
S4109
PIN USAGE FREQUENCY SETTING
S4110
PIN PRIORITY ORDER SETTING
S3107
COMPONENT ASSIGNING
S3109
ALL PRIORITY COMPONENTS PLACED?
Y
N
S3110
SECOND COMPONENT GROUP PLACEMENT
END

FIG. 34

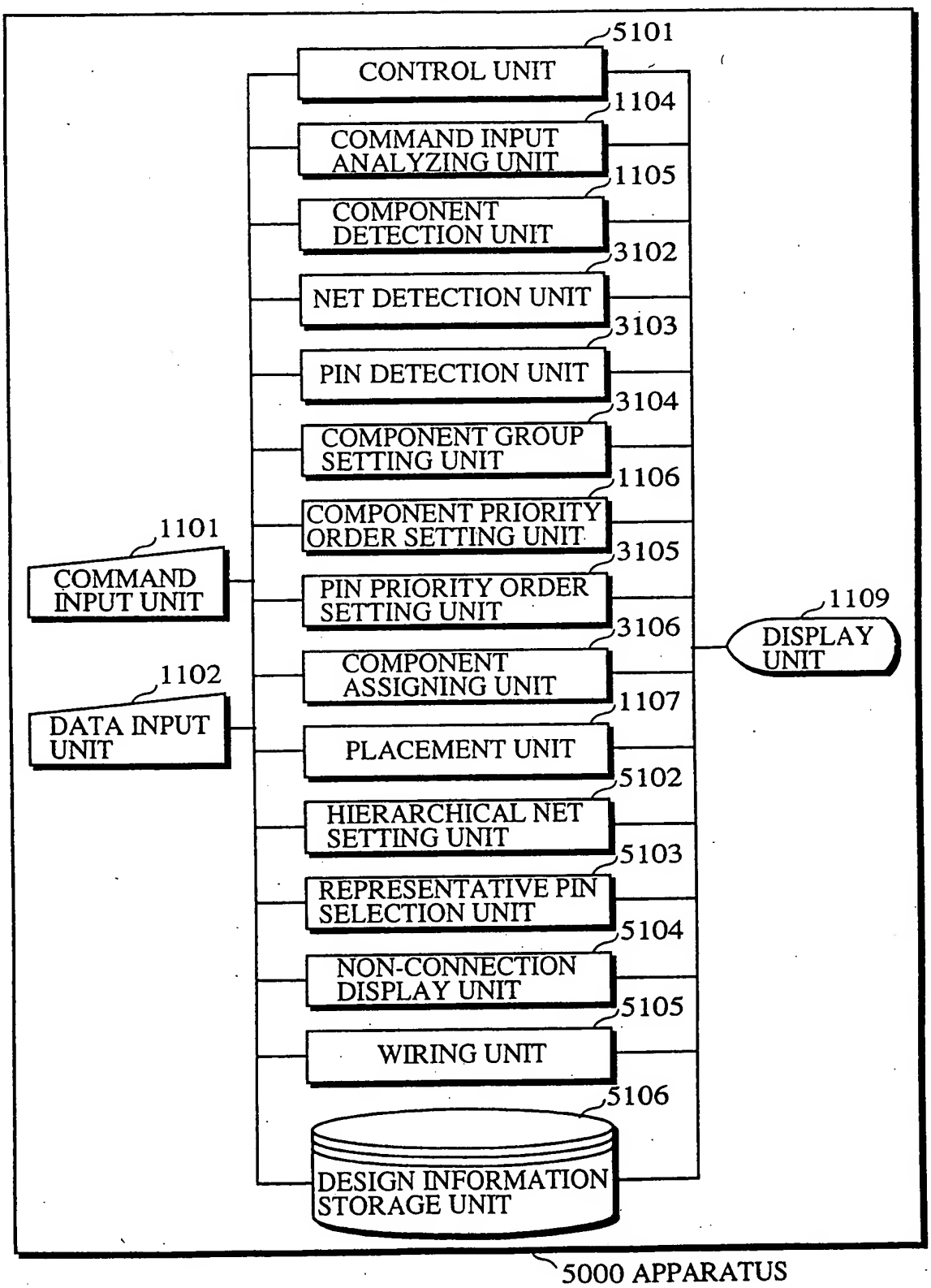
5101
CONTROL UNIT
1104
COMMAND INPUT ANALYZING UNIT
1105
COMPONENT DETECTION UNIT
3102
NET DETECTION UNIT
3103
PIN DETECTION UNIT
3104
COMPONENT GROUP SETTING UNIT
1106
COMPONENT PRIORITY ORDER SETTING UNIT
3105
PIN PRIORITY ORDER SETTING UNIT
3106
COMPONENT ASSIGNING UNIT
1107
PLACEMENT UNIT
5102
HIERARCHICAL NET SETTING UNIT
5103
REPRESENTATIVE PIN SELECTION UNIT
5104
NON-CONNECTION DISPLAY UNIT
5105
WIRING UNIT
5106
DESIGN INFORMATION STORAGE UNIT
1101
COMMAND INPUT UNIT
1102
DATA INPUT UNIT
1109
DISPLAY UNIT
5000 APPARATUS

FIG. 35

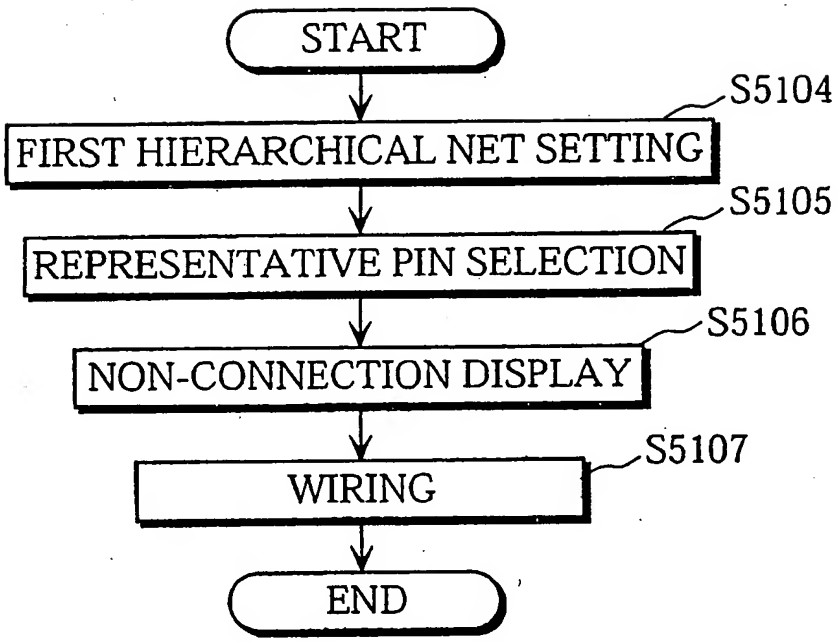
START
S5104
FIRST HIERARCHICAL NET SETTING
S5105
REPRESENTATIVE PIN SELECTION
S5106
NON-CONNECTION DISPLAY
S5107
WIRING
END

FIG. 36

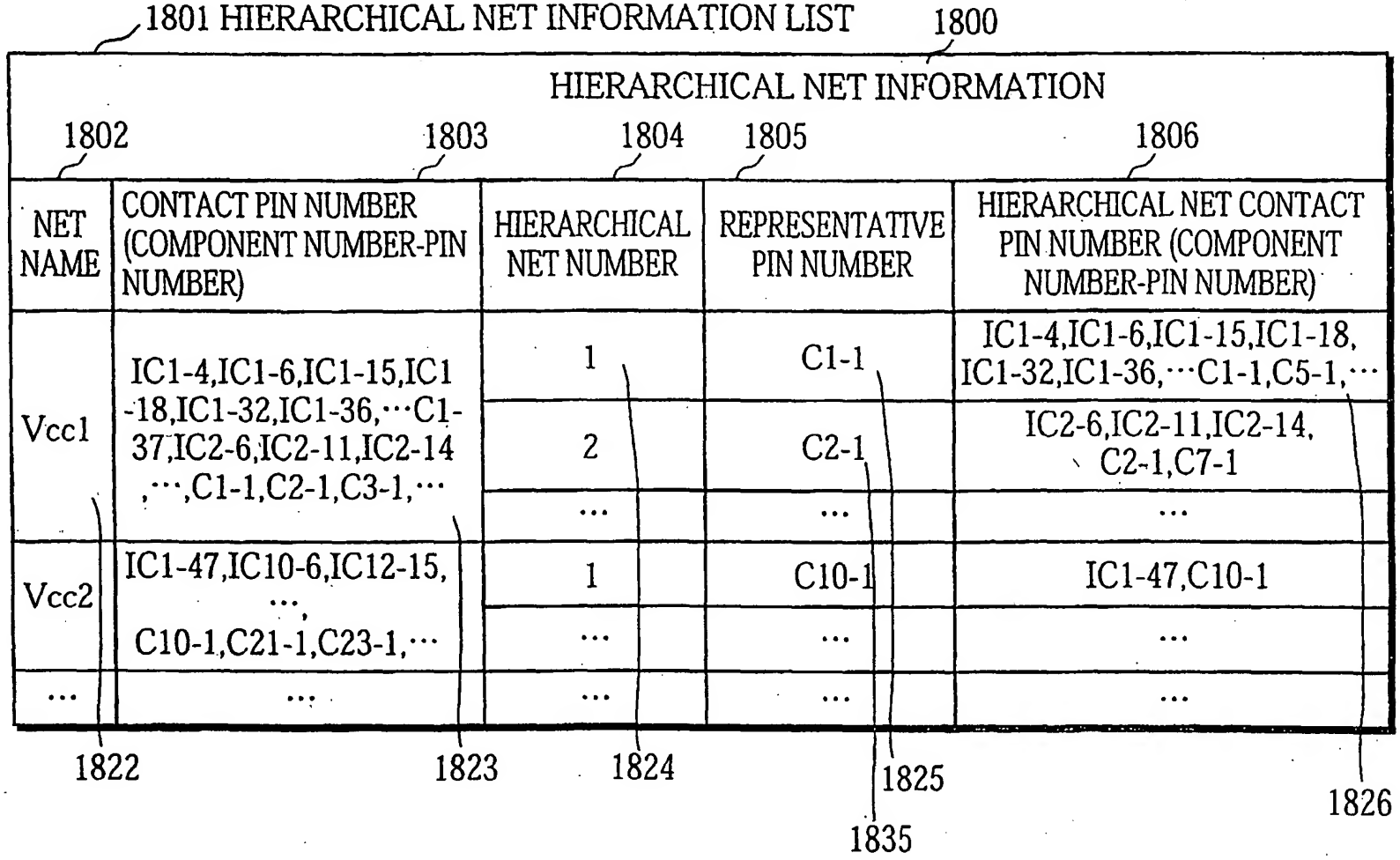
1801 HIERARCHICAL NET INFORMATION LIST
1800
HIERARCHICAL NET INFORMATION
1802
1803
1804
1805
1806
NET NAME
CONTACT PIN NUMBER (COMPONENT NUMBER-PIN NUMBER)
HIERARCHICAL NET NUMBER
REPRESENTATIVE PIN NUMBER
HIERARCHICAL NET CONTACT PIN NUMBER (COMPONENT NUMBER-PIN NUMBER)
Vcc1
IC1-4,IC1-6,IC1-15,IC1-18,IC1-32,IC1-36,···C1-37,IC2-6,IC2-11,IC2-14,···,C1-1,C2-1,C3-1,···
1
C1-1
IC1-4,IC1-6,IC1-15,IC1-18,IC1-32,IC1-36,···C1-1,C5-1,···
2
C2-1
IC2-6,IC2-11,IC2-14,C2-1,C7-1
···
···
···
Vcc2
IC1-47,IC10-6,IC12-15,···,C10-1,C21-1,C23-1,···
1
C10-1
IC1-47,C10-1
···
···
···
···
···
···
···
1822
1823
1824
1825
1826
1835

FIG. 37

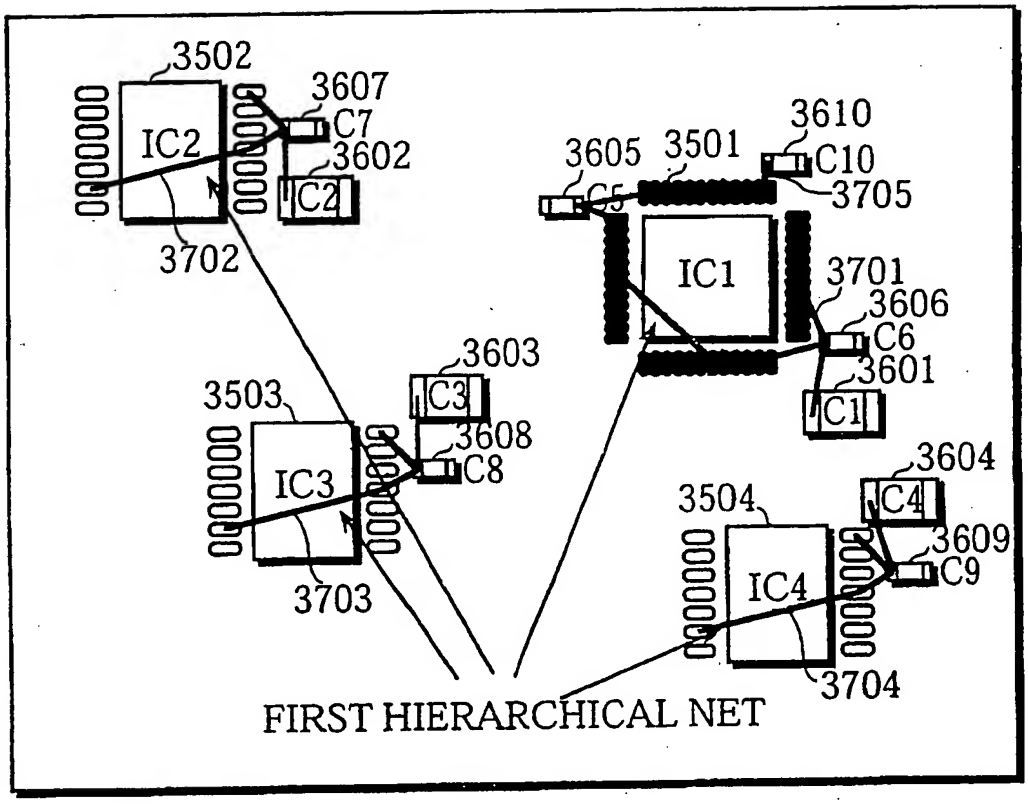
3502
3607
C7
IC2
3602
C2
3702
3610
3605
3501
C10
C5
3705
IC1
3701
3606
C6
3601
C1
3603
C3
3503
3608
C8
IC3
3703
3604
C4
3504
3609
C9
IC4
3704
FIRST HIERARCHICAL NET

FIG. 38

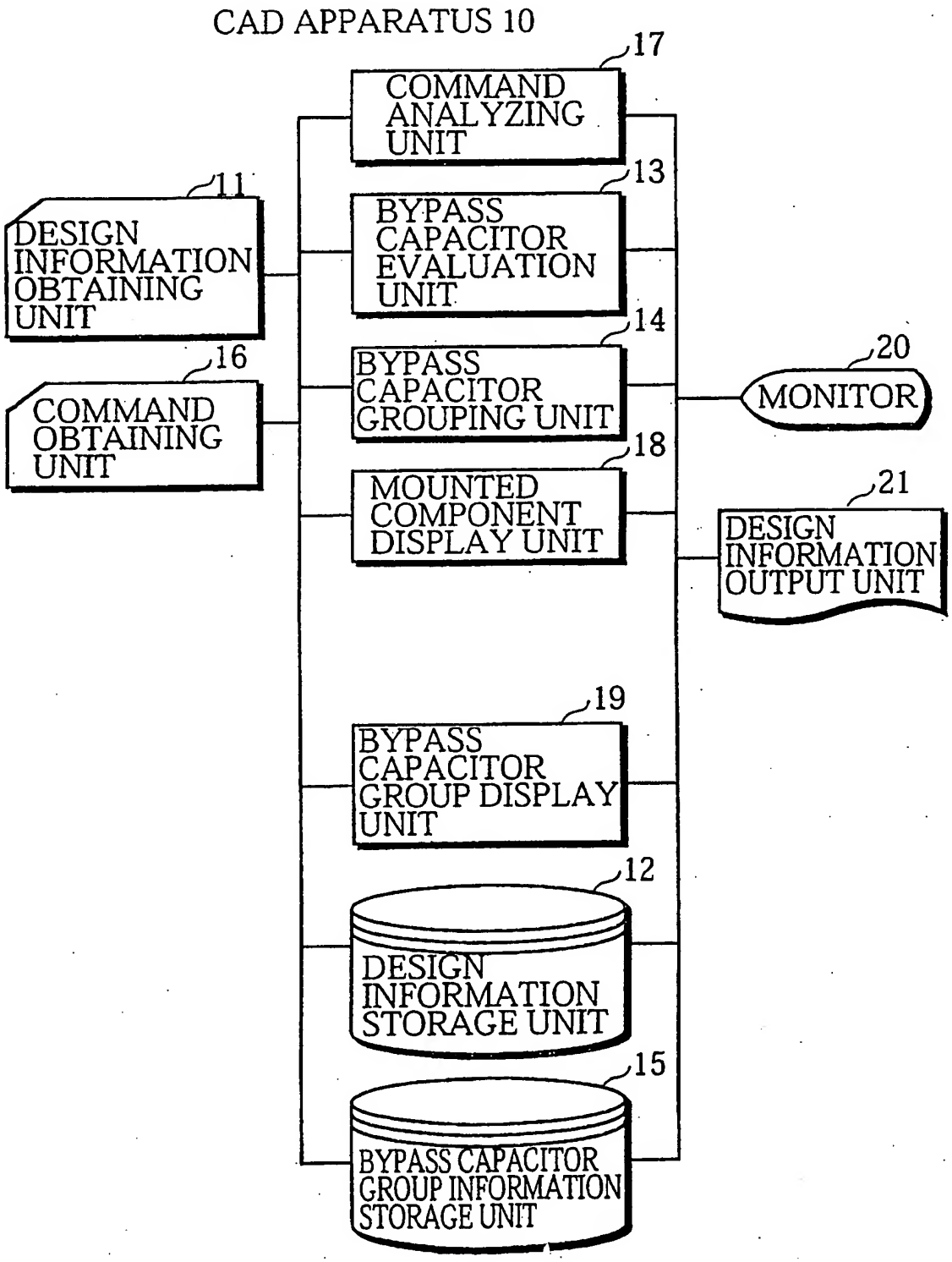
CAD APPARATUS 10
17
COMMAND ANALYZING UNIT
11
DESIGN INFORMATION OBTAINING UNIT
13
BYPASS CAPACITOR EVALUATION UNIT
14
BYPASS CAPACITOR GROUPING UNIT
16
COMMAND OBTAINING UNIT
18
MOUNTED COMPONENT DISPLAY UNIT
20
MONITOR
21
DESIGN INFORMATION OUTPUT UNIT
19
BYPASS CAPACITOR GROUP DISPLAY UNIT
12
DESIGN INFORMATION STORAGE UNIT
15
BYPASS CAPACITOR GROUP INFORMATION STORAGE UNIT

FIG. 39A

COMPONENT INFORMATION

COMPONENT NUMBER	COMPONENT NAME	COMPONENT TYPE	CAPACITY [μF]	NDUCTANCE [nH]	EFFECTIVE PIN COUNT [NUMBER OF PINS]	REPRESENTATIVE POINT COORDINATES	MINIMUN /MAXIMUM DOMAIN
IC1	MN1	IC	—	—	—	(64,11)	(56,10) · (72,30)
IC2	MN2	IC	—	—	—	(84,11)	(76,10) · (92,30)
...	...	...	—	—	—	...	...
C1	EC10	CAPACITOR	0.1	0.5	3	(139,59)	(137,59) · (141,60)
C2	EC20	CAPACITOR	0.1	0.5	3	(150,59)	(148,59) · (152,60)
...	...	...	...	...	...	...	...

FIG. 39B

PIN INFORAMTION

COMPONENT NUMBER	PIN NUMBER	NET NAME	NET TYPE	FREQUENCY [MHz]	NECESSARY CAPACITY [μF]	REPRESENTATIVE POINT COORDINATES
IC1	1	PWR1	POWER	100	0.03	(69,29)
	2	GND1	GROUND	100	0.05	(69,11)
	3	CLK	CLOCK	100	0.01	(59,11)
	4	SIG1	GENERAL	100	0.01	(59,29)
	...	...	....	...	...	...
...	...	...	...	...	...	...
C1	1	PWR1	POWER	—	—	(138,59)
C1	2	GND1	GROUND	—	—	(140,59)
C2	1	PWR2	POWER	—	—	(139,59)
C2	2	GND2	GROUND	—	—	(151,59)
...	...	...	...	...	...	...

FIG. 39C

NET INFORMATION

NET NAME	COMPONENT NUMBER	PIN NUMBER
GND1	IC1	2
	C1	2
	...	...
GND2	C2	2
	...	...
PWR1	IC1	1

FIG. 40

GROUP NUMBER	IC		BYPASS CAPACITOR		EFFECTIVENESS
	COMPONENT NUMBER	PIN NUMBER	COMPONENT NUMBER	PIN NUMBER	
1	IC1	4	C1	1	90
2	IC2	1	C2	1	70
3	IC3	1	C2	1	60
4	IC4	8	C3	1	50
5	IC4	8	C4	1	70
...	...	...	...	...	...

FIG. 41

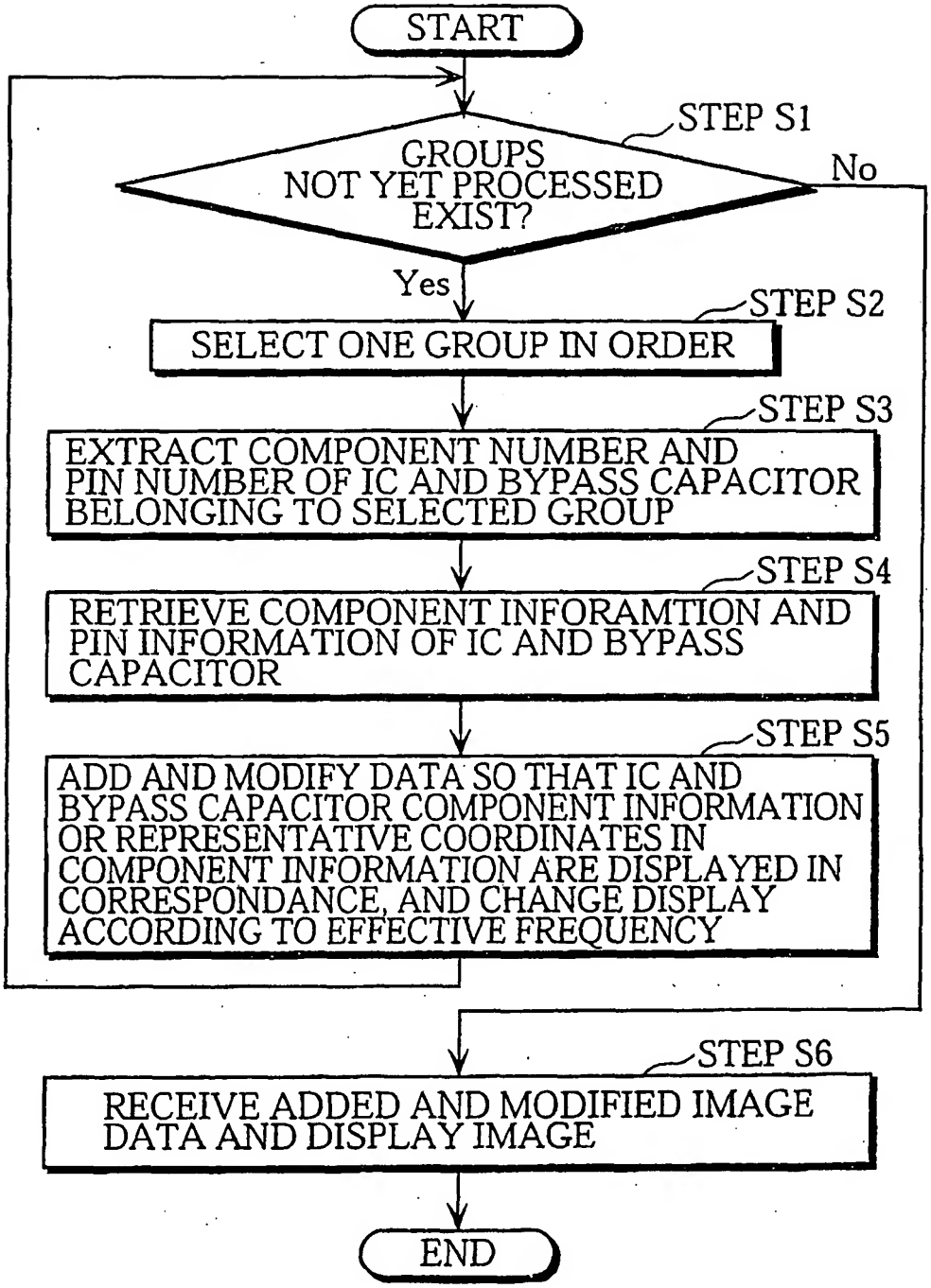
START
STEP S1
GROUPS NOT YET PROCESSED EXIST?
No
Yes
STEP S2
SELECT ONE GROUP IN ORDER
STEP S3
EXTRACT COMPONENT NUMBER AND PIN NUMBER OF IC AND BYPASS CAPACITOR BELONGING TO SELECTED GROUP
STEP S4
RETRIEVE COMPONENT INFORAMTION AND PIN INFORMATION OF IC AND BYPASS CAPACITOR
STEP S5
ADD AND MODIFY DATA SO THAT IC AND BYPASS CAPACITOR COMPONENT INFORMATION OR REPRESENTATIVE COORDINATES IN COMPONENT INFORMATION ARE DISPLAYED IN CORRESPONDANCE, AND CHANGE DISPLAY ACCORDING TO EFFECTIVE FREQUENCY
STEP S6
RECEIVE ADDED AND MODIFIED IMAGE DATA AND DISPLAY IMAGE
END

FIG. 42A

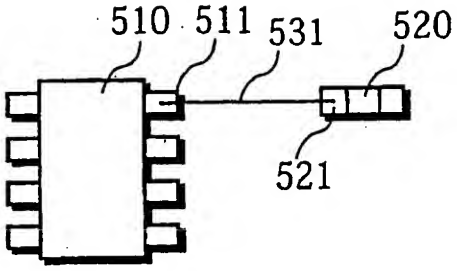

FIG. 42B

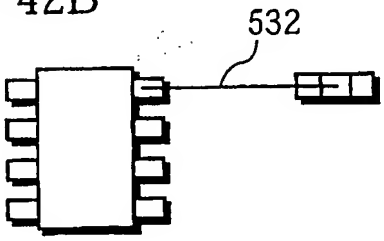

FIG. 42C

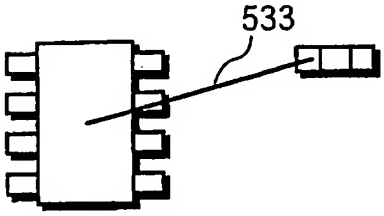

FIG. 42D

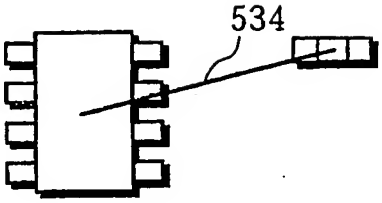

FIG. 43A

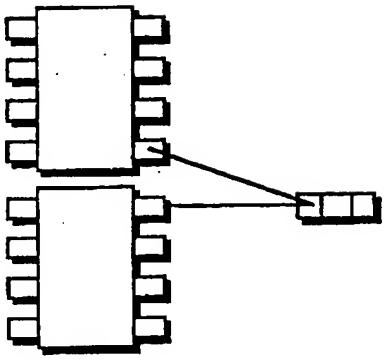

FIG. 43B

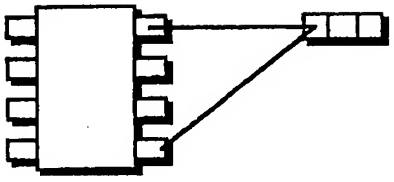

FIG. 43C

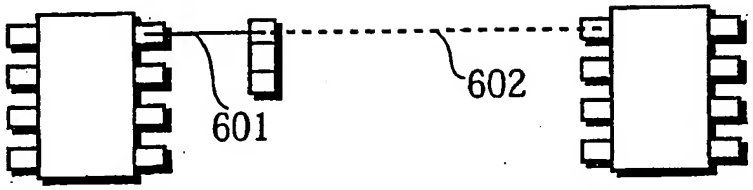

FIG. 44A

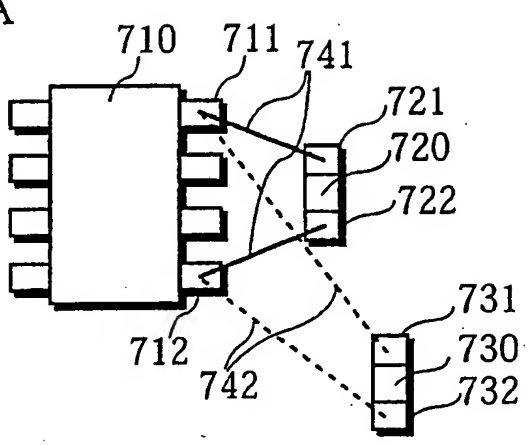

FIG. 44B

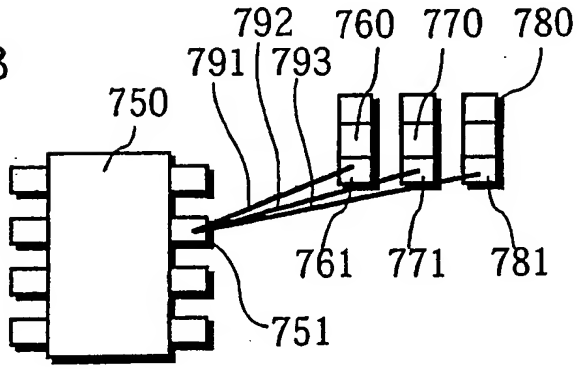

FIG. 45

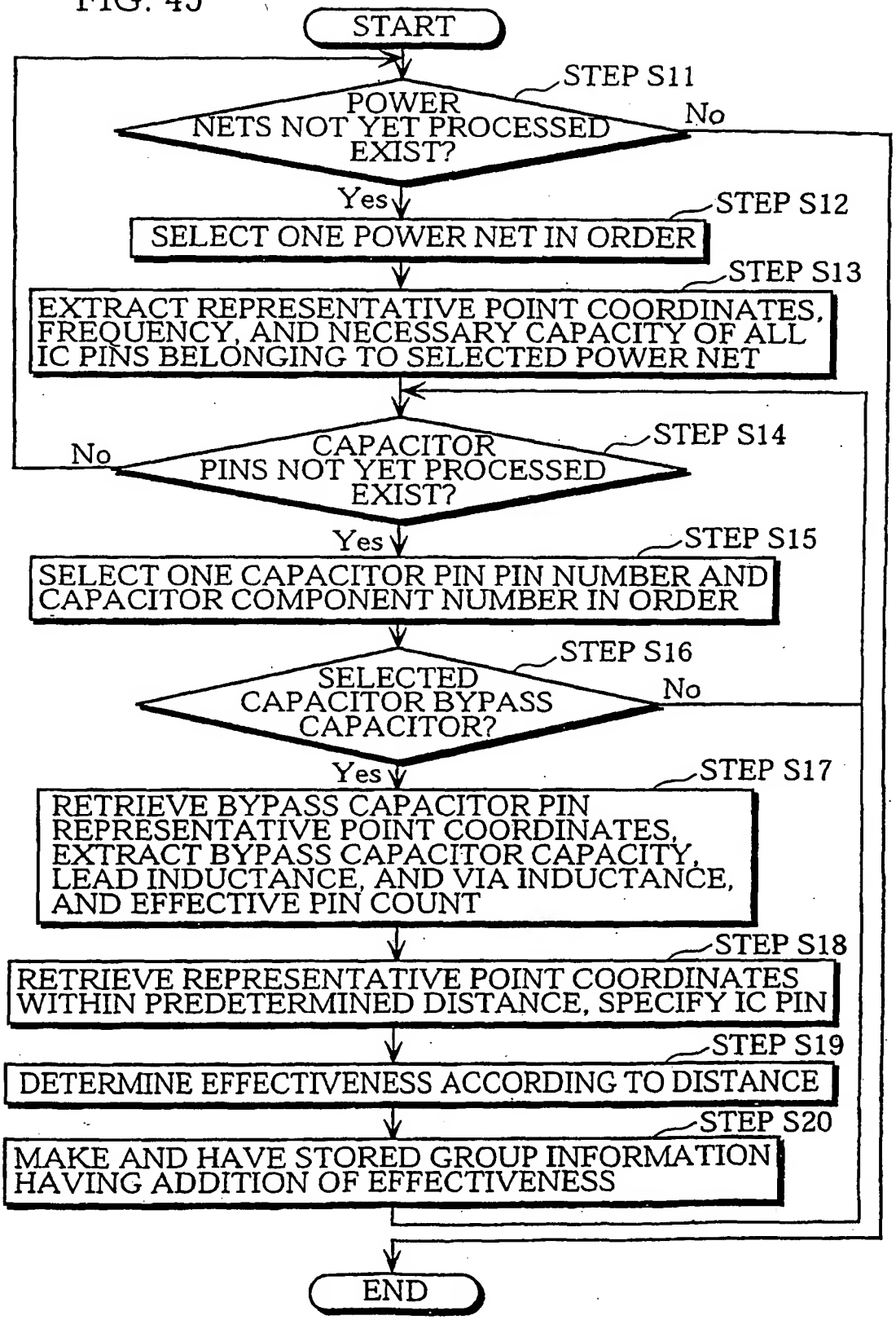
START
STEP S11
POWER NETS NOT YET PROCESSED EXIST?
No
Yes
STEP S12
SELECT ONE POWER NET IN ORDER
STEP S13
EXTRACT REPRESENTATIVE POINT COORDINATES, FREQUENCY, AND NECESSARY CAPACITY OF ALL IC PINS BELONGING TO SELECTED POWER NET
STEP S14
CAPACITOR PINS NOT YET PROCESSED EXIST?
No
Yes
STEP S15
SELECT ONE CAPACITOR PIN PIN NUMBER AND CAPACITOR COMPONENT NUMBER IN ORDER
STEP S16
SELECTED CAPACITOR BYPASS CAPACITOR?
No
Yes
STEP S17
RETRIEVE BYPASS CAPACITOR PIN REPRESENTATIVE POINT COORDINATES, EXTRACT BYPASS CAPACITOR CAPACITY, LEAD INDUCTANCE, AND VIA INDUCTANCE, AND EFFECTIVE PIN COUNT
STEP S18
RETRIEVE REPRESENTATIVE POINT COORDINATES WITHIN PREDETERMINED DISTANCE, SPECIFY IC PIN
STEP S19
DETERMINE EFFECTIVENESS ACCORDING TO DISTANCE
STEP S20
MAKE AND HAVE STORED GROUP INFORMATION HAVING ADDITION OF EFFECTIVENESS
END

FIG. 46A

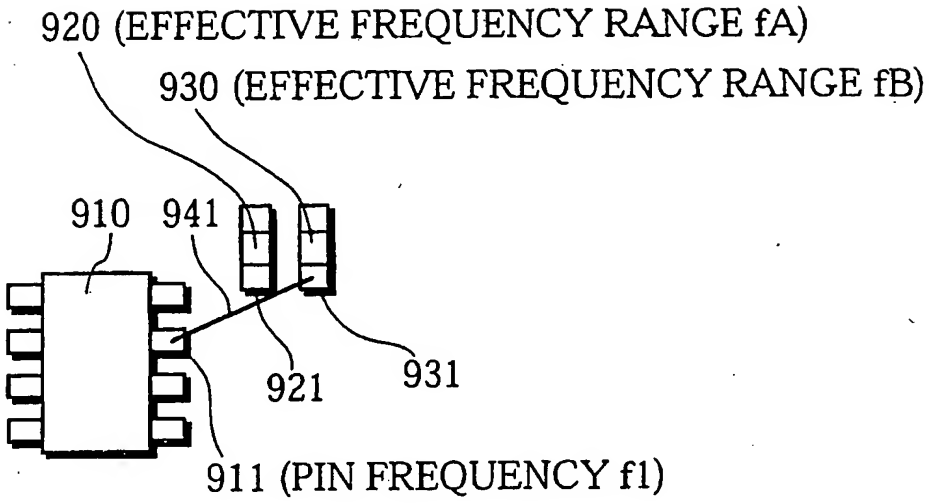

FIG. 46B

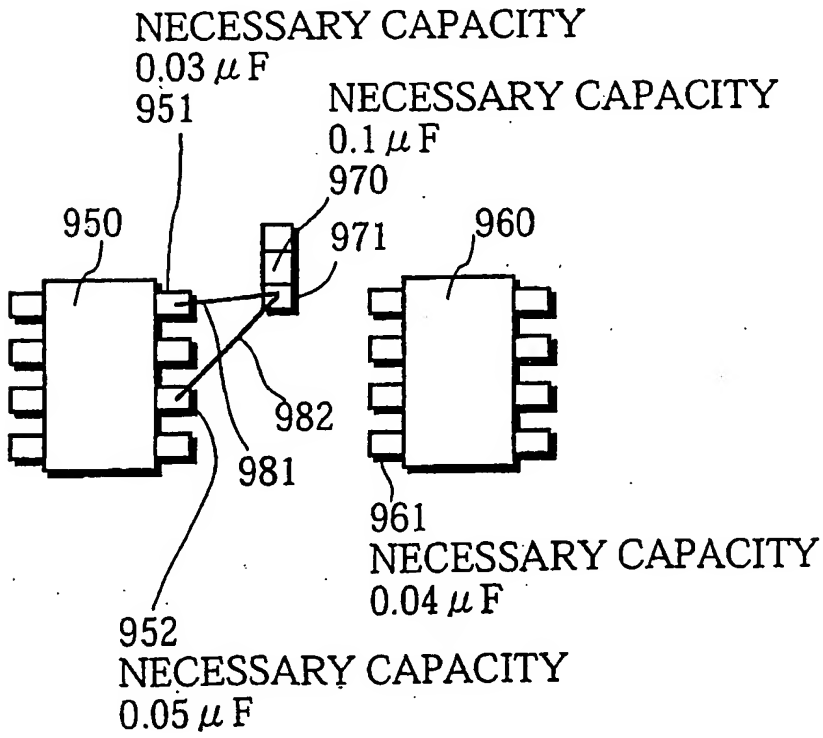

FIG. 47

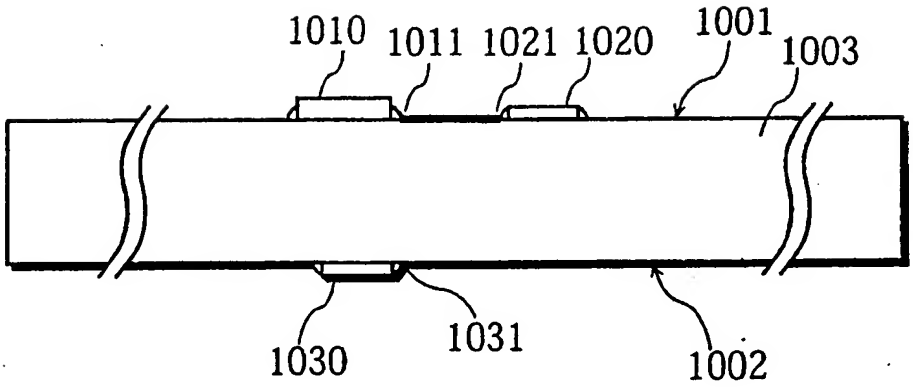

FIG. 48

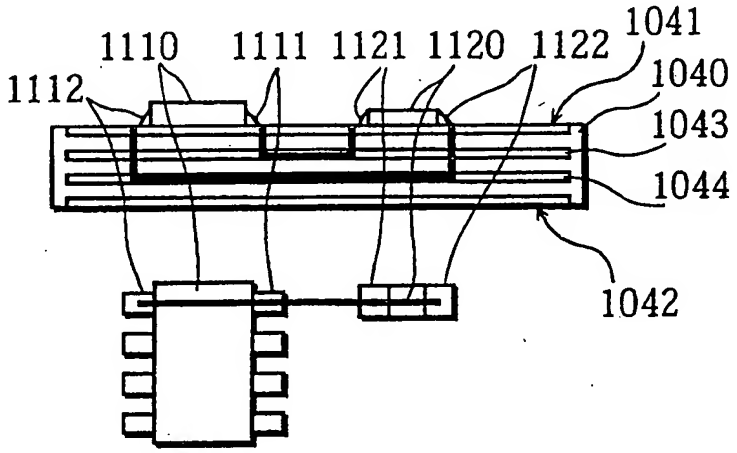
1110
1111
1121
1120
1122
1041
1112
1040
1043
1044
1042

FIG. 49

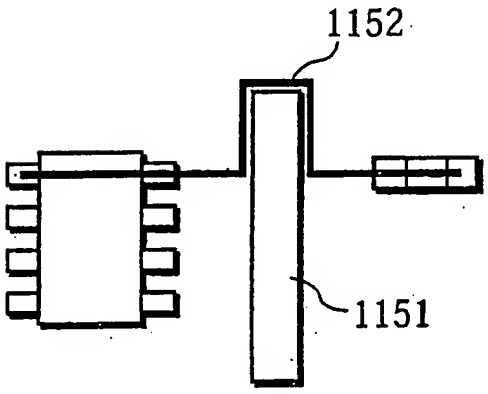
1152
1151

FIG. 50

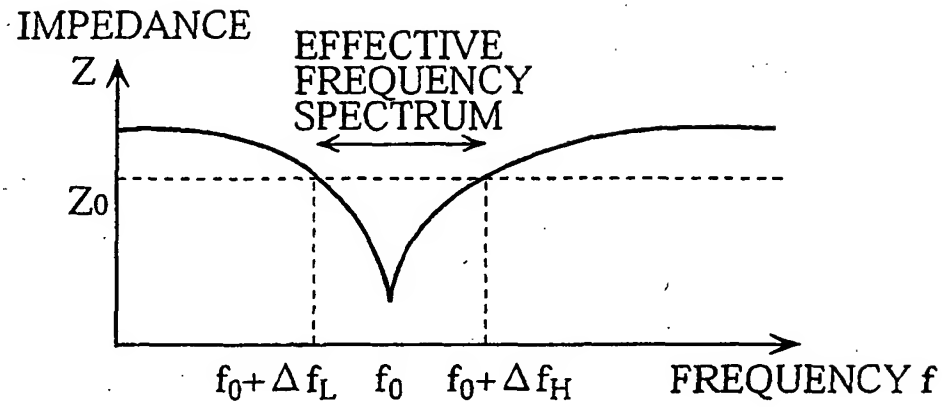

FIG. 51A

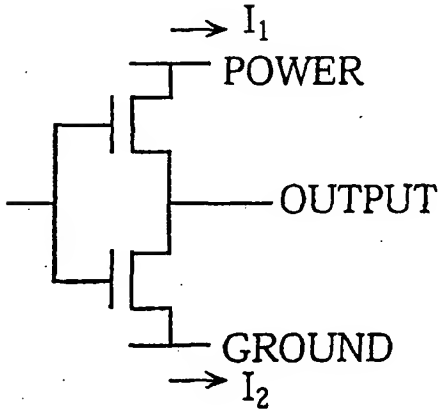

FIG. 51B

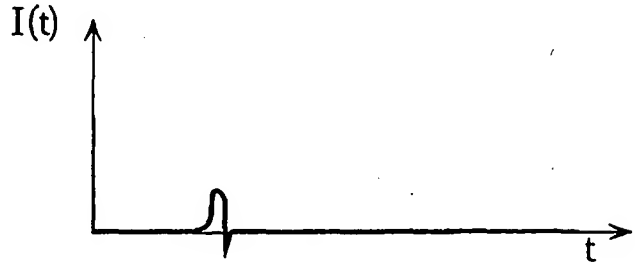

FIG. 51C

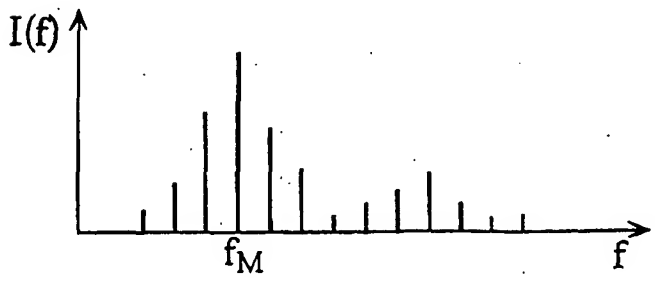

FIG. 52

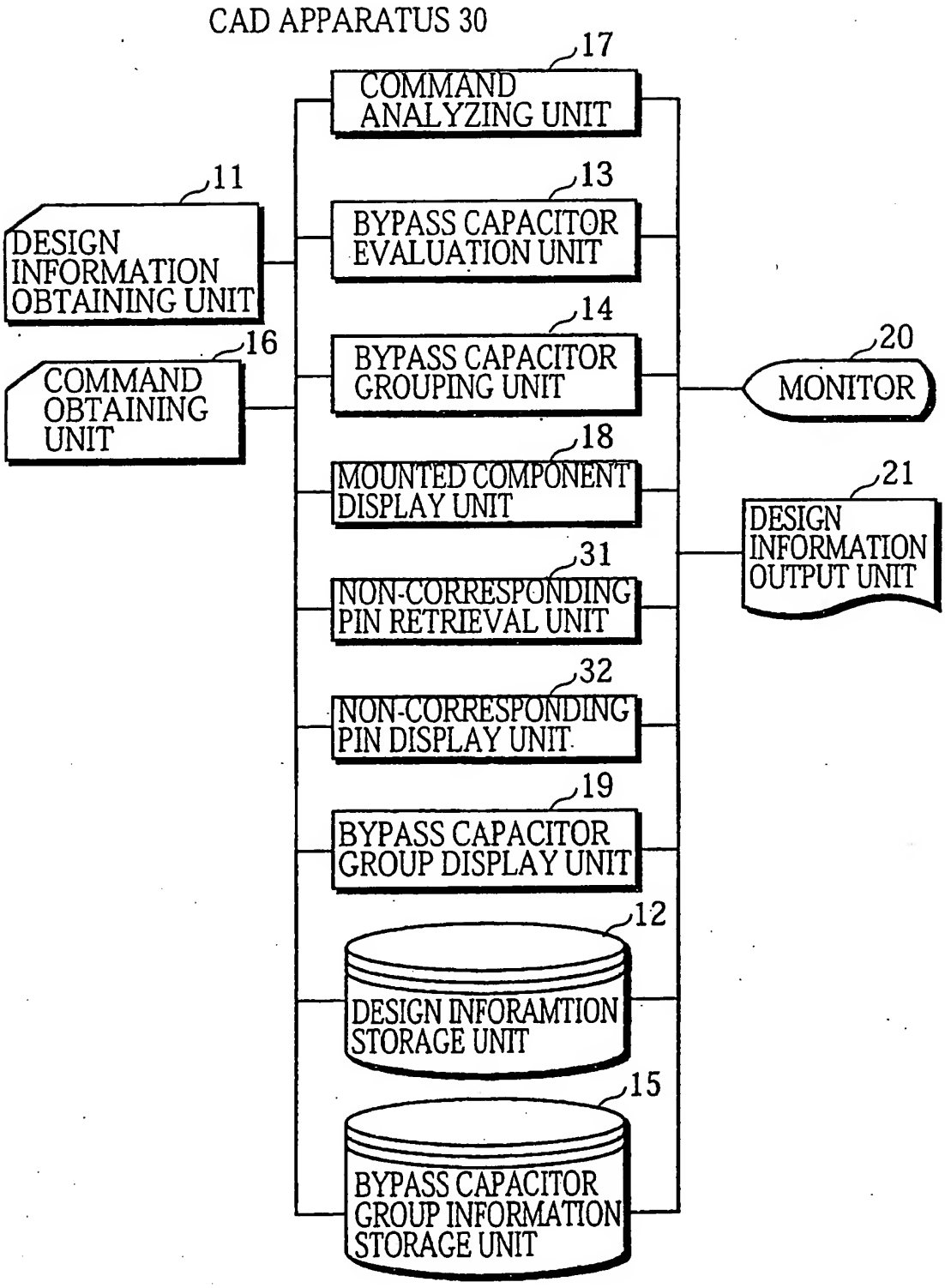
CAD APPARATUS 30
17
COMMAND ANALYZING UNIT
11
DESIGN INFORMATION OBTAINING UNIT
13
BYPASS CAPACITOR EVALUATION UNIT
14
BYPASS CAPACITOR GROUPING UNIT
16
COMMAND OBTAINING UNIT
20
MONITOR
18
MOUNTED COMPONENT DISPLAY UNIT
21
DESIGN INFORMATION OUTPUT UNIT
31
NON-CORRESPONDING PIN RETRIEVAL UNIT
32
NON-CORRESPONDING PIN DISPLAY UNIT
19
BYPASS CAPACITOR GROUP DISPLAY UNIT
12
DESIGN INFORAMTION STORAGE UNIT
15
BYPASS CAPACITOR GROUP INFORMATION STORAGE UNIT

FIG. 53

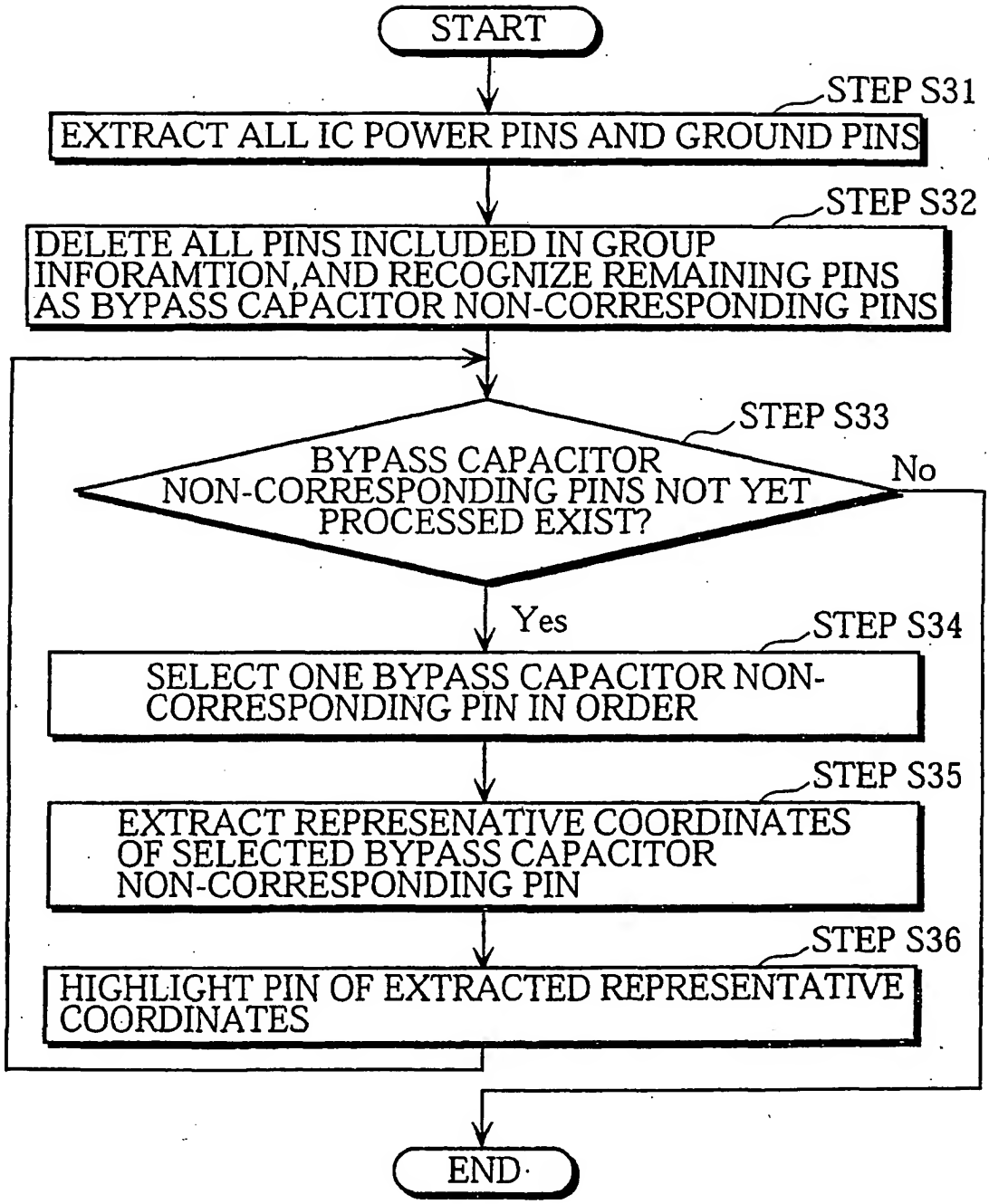
START
STEP S31
EXTRACT ALL IC POWER PINS AND GROUND PINS
STEP S32
DELETE ALL PINS INCLUDED IN GROUP INFORAMTION,AND RECOGNIZE REMAINING PINS AS BYPASS CAPACITOR NON-CORRESPONDING PINS
STEP S33
BYPASS CAPACITOR NON-CORRESPONDING PINS NOT YET PROCESSED EXIST?
No
Yes
STEP S34
SELECT ONE BYPASS CAPACITOR NON-CORRESPONDING PIN IN ORDER
STEP S35
EXTRACT REPRESENATIVE COORDINATES OF SELECTED BYPASS CAPACITOR NON-CORRESPONDING PIN
STEP S36
HIGHLIGHT PIN OF EXTRACTED REPRESENTATIVE COORDINATES
END

FIG. 54

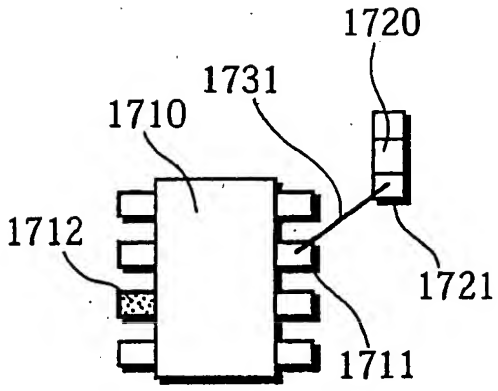

FIG. 55

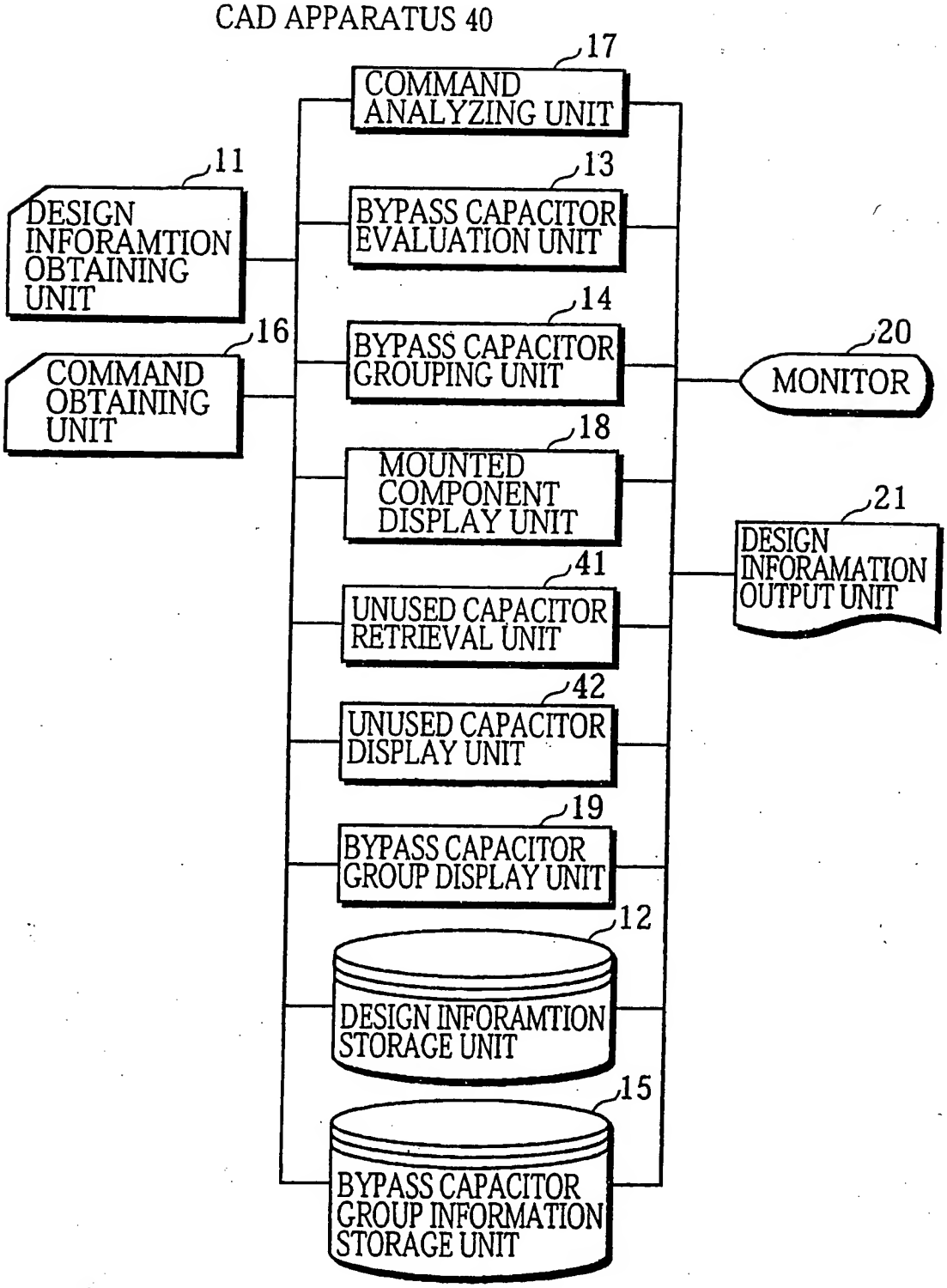
CAD APPARATUS 40
17
COMMAND ANALYZING UNIT
11
DESIGN INFORAMTION OBTAINING UNIT
13
BYPASS CAPACITOR EVALUATION UNIT
14
BYPASS CAPACITOR GROUPING UNIT
16
COMMAND OBTAINING UNIT
20
MONITOR
18
MOUNTED COMPONENT DISPLAY UNIT
21
DESIGN INFORAMATION OUTPUT UNIT
41
UNUSED CAPACITOR RETRIEVAL UNIT
42
UNUSED CAPACITOR DISPLAY UNIT
19
BYPASS CAPACITOR GROUP DISPLAY UNIT
12
DESIGN INFORAMTION STORAGE UNIT
15
BYPASS CAPACITOR GROUP INFORMATION STORAGE UNIT

FIG. 56

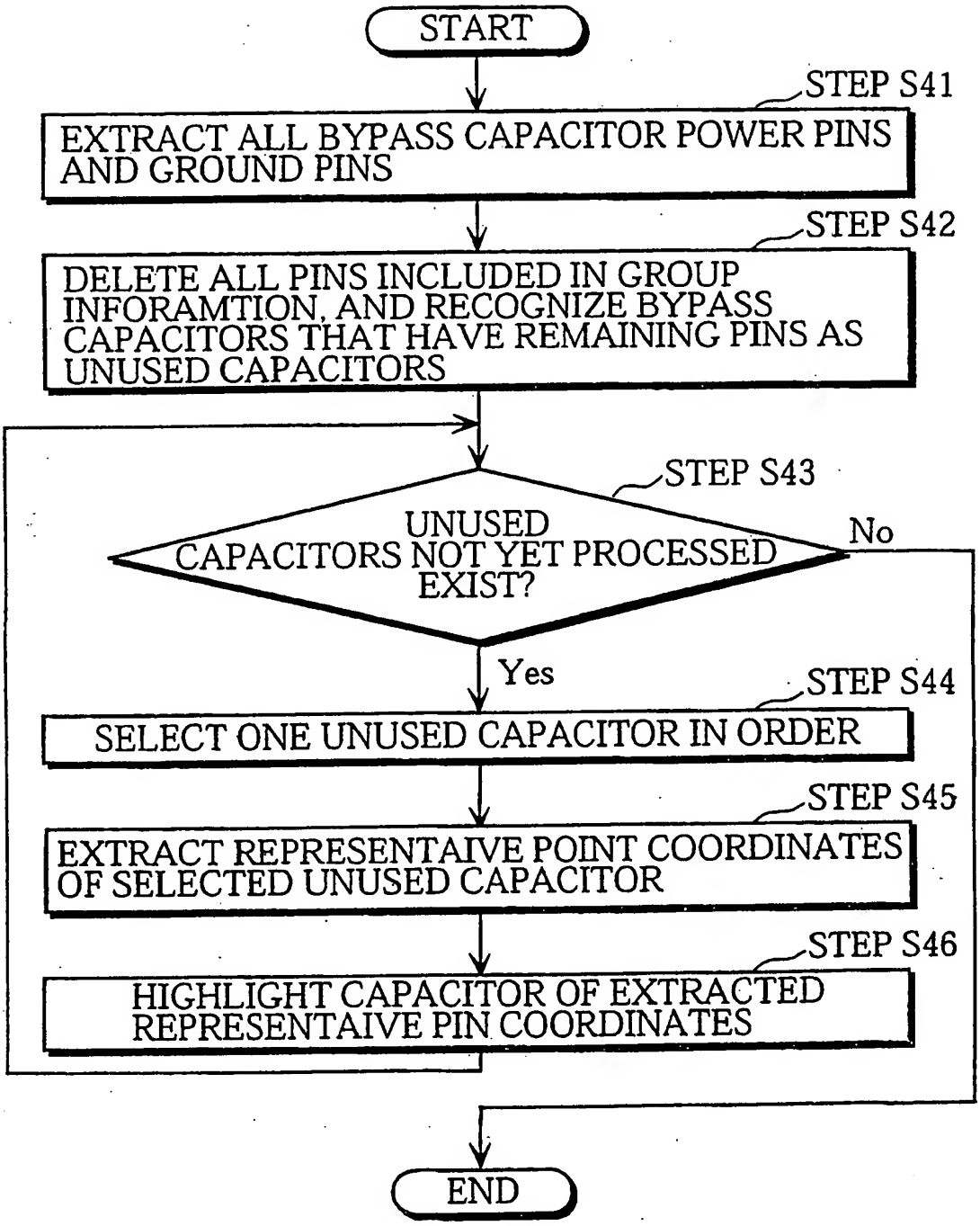
START
STEP S41
EXTRACT ALL BYPASS CAPACITOR POWER PINS AND GROUND PINS
STEP S42
DELETE ALL PINS INCLUDED IN GROUP INFORAMTION, AND RECOGNIZE BYPASS CAPACITORS THAT HAVE REMAINING PINS AS UNUSED CAPACITORS
STEP S43
UNUSED CAPACITORS NOT YET PROCESSED EXIST?
No
Yes
STEP S44
SELECT ONE UNUSED CAPACITOR IN ORDER
STEP S45
EXTRACT REPRESENTAIVE POINT COORDINATES OF SELECTED UNUSED CAPACITOR
STEP S46
HIGHLIGHT CAPACITOR OF EXTRACTED REPRESENTAIVE PIN COORDINATES
END

FIG. 57